

SHED SOME LIGHT ON YOUR

TAPE PROBLEMS
SEE inside
COMPUTER-LINK (UK)
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NEWS IN BRIEF

Nick Bark leaving PEDS

NICK BARK, managing director of Perkin-Elmer Data Systems' European operation for the past three years, has resigned to become president of European operations for a large US electronics company which is planning to break into markets on this side of the Atlantic. The company is understood to be one of the leaders in the defence market.

Bark joined Interdata, as it was then, in 1976 when the European operation had sales of \$7 million a year and a staff of about 60. Sales for the present year are expected to be about \$45 million and UK staff alone totals 200.

More disc power

FINANCING the specifications of the yet to be delivered System 38 database-oriented business computer, IBM has announced that up to four of its 570 Mbyte 3370 fixed disc drives can be fitted to the 38/5. Total cost, including adaptor, is £68,207, or £33.50 a Mbyte.

Shipping launch

A MONTHLY magazine called Lloyds Shipping Economist with detailed analyses of world shipping developments was launched this week by Lloyds of London Press. Its contents are largely based on reports generated by Lloyds Digital Equipment PDP-11/70 system at Colchester, from Lloyds' own database on ship movements and from technical data supplied by Lloyds Register of Shipping.

Growing role

SPECIALIST services for Univac's BC7 small business computer are likely to be a growing part of the business of Guardian Computer Services, of Manchester. An approved Univac software house, the company has installed a 128K BC/7 in its new premises at St James' House, Pendleton Way, Salford, Manchester 6.

Wyly Corp chairman replaced



Wyly

SAM WYLY, who founded the University Computing Company in 1963, has been replaced as chairman and chief executive officer of UCC's parent, the Wyly Corp, by John Kason from the UK. Wyly's share in the Dallas, Texas, company was reduced from 11% to 2% last year when its principal creditor, Cereol Holding of Zurich, took a controlling interest.

Wyly Corp ran into serious financial trouble in 1976 after the collapse of its ambitious microwave-based data network, Datran.

To avoid having to seek protection under the US bankruptcy laws, Wyly settled its debts with a recapitalisation plan under which creditors were offered 100 shares and \$110 cash for every \$1,000 they were owed. Cereol Holding, which had put \$50 million into Datran, ended up with 51% of Wyly Corp stock.

Cereol's relationship with UCC began in the late Sixties when Cereol's boss, Walter Hafner, sold his Zurich-based Automation Center bureau network to

UCC and took a minority share in the Dallas company.

Sam Wyly told Computer Weekly that his only involvement with Wyly Corp now was as an adviser to the company on its \$300 million unit-trust suit against AT&T, the US telecommunications giant. Wyly Corp is charging AT&T with introducing unreasonably low rates for data transmission services in 1974 which made it difficult for Datran to sign new customers.

The other leading European UCC when the latter acquired Computer Services (Birmingham) Ltd in 1967. He rose through the ranks, being elected to the board of the Dallas company in 1974, and was made president last year (CW, March 9, 1978).

UCC says that Kason "saw through" last year's recapitalisation.

Burroughs regroups for office of the future

BURROUGHS is strengthening its resources in the electronic office area, according to observers in the US.

A special Office Automation division has been set up within the Office Products Group, and a bid has been made for Context Corp, a privately-owned maker of OCR machines based in Burlington, Mass.

The Office Automation Division will include WP market reduction and for company Graphic Sciences, and will be managed by Del Barry, former president of Graphic Sciences.

Thorn tipped as Modcomp bidder

LATEST UK company to ride the US takeover trail is Thorn Electrical Industries — and the domestic appliance and consumer electronics giant is strongly tipped as one of two multinational companies bidding for Modcomp.

The new president of Modcomp, Alexander Giles, declined to comment on suggestions that either Thorn or Gould was interested in his company, but

strongly rejected a widely-touted rumour that GEC had come back for more talks.

Thorn is seeking to diversify into microprocessor applications and communications fields, and already has a UK joint venture with Ericsson of Sweden on private digital telephone exchanges.

Although Modcomp does not precisely fit the profile of the company Thorn is seeking, and Thorn would neither confirm nor deny its interest, sources indicate that not only is Thorn bidding but that it is the front-runner.

The other multinational company interested in Modcomp is likely to be Northern Telecom of Canada.

Thorn has announced that it has conducted studies in the microelectronics field with a view to making acquisitions in the US and Europe, and sources say that it has independently identified several US companies already studied by GEC as possible acquisition candidates.

GEC held abortive pre-acquisition talks with Modcomp last year, and was thought to have reopened negotiations (CW, January 11).

Speaking from Modcomp's Fort Lauderdale, Florida headquarters, Giles told Computer Weekly that the minifactory submitted revised accounts for 1973 to 1978 to the US Securities

& Exchange Commission last Thursday. Any negotiations on a merger are stalled pending acceptance of these (CW, February 15).

"I expect it to take 30 to 60 days," said Giles. "We are now willing to talk seriously about being acquired."

"We have not yet released our 1978 figures but they will show sales of about \$65 million."

"The attraction of Modcomp is a potential bidder is that there are only three independent minifactories in the industrial market, and Modcomp has a key reputation. Anyone wanting to go into industrial control needs a company like ours."

Modcomp is also noted for its Muxnet communications software.

Extending its power, Thomas Sales, a manufacturer of Chemtronic 128K system from a 64K. It is at present being up-production management will eventually be applied to accounting routines.

Toy firm's up

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Downtime

by Chad

The gentle art of obfuscation

A READER, G. A. R. Taylor, three weeks ago was inveighing against our letters page against jargon in computing — a futile task, I'm afraid. Prompted by this, Nick Bell of BICC has sent in a couple of glorious pieces of obfuscation, courtesy of ICL.

Each library list contains a number of catalogued entries, also known as library lists, each of which contains a list of libraries that may be added to the library list. (VME/8 System Construction and Maintenance manual)

Definition of a list: A cyclically

re-used direct-access non-volatile file space. (Technical Journal)

Still we cannot claim that computer people have a monopoly on labyrinthine prose. I don't think anything will ever beat the celebrated Admiralty minute:

It is vital for safety reasons that these warheads be stored with the top of the bottom and the bottom of the top. In order that there may be no doubt as to which is the top and which is the bottom for storage purposes, the bottom of each warhead will be clearly labelled with the word "Top."



This is Varian's latest micro-controlled atomic absorption spectrophotometer. So now you know, it's not so easy to see that even such wonderful machines as this, when undergoing diagnosis, have to suffer the indignity of being asked to pee in a bottle.

Liverpool chips in

DESPITE the view of foreigners that we Britons are all stuck-in-the-muds, our city fathers seem far from slow in taking up the cause of new technology. Only a year ago most of them would have said that California's main export is celluloid rather than silicon, and yet here they all are squabbling in a most unseemly fashion over who is to get limos.

I see in the Telegraph that Liverpool is now calling itself Silicon City, which I presume will lead to some protest from Bristol. Perhaps we will have battles of the chips, with teams from rival areas hurling 40-pin packages at one another. Will it be cheating to sharpen the pins on a whetstone? Then there'll be press gangs roaming the streets, rounding up stray electronics

engineers who still misguidedly want to stay in the South-East.

There has been a heated correspondence in the Liverpool Echo over whether effort should be spent on Saving the Lyceum, a relic of bygone days, or whether the time should be spent trying to attract the microelectronics battalions. One writer insisted that international whizz-kids would go to Bristol because amenities were better there, and therefore the Lyceum is vital to Liverpool's future. I like the idea of our supertechnocrats changing their minds over where they want to live because of one building which, I understand from a colleague, is a faded Victorian clubhouse that it is painfully obvious has seen better days.

NCC seminar

WHAT PRICE PRIVACY

Wednesday, 11 April, 1979

The Institute of Marine Engineers
Conference Centre
Mark Lane
London EC3

What will the privacy recommendations cost you?

If the recommendations of the Data Protection Committee become law, every computer user will have to make some changes to his systems. These changes could be costly and disruptive unless they are anticipated and planned.

NCC's seminar "What Price Privacy" will tell you what it means and how to implement the changes with the minimum disturbance.

A one-day seminar for computer professionals, auditors and others involved in privacy matters. Registration fee — £72.90 (NCC members) and £81.00 (non NCC members).

Seminar Bookings:

Joan Beth 34
The National Computing Centre Ltd.
Oxford Road
Manchester M1 7ED
061-228 8543

A central policy is needed to cover computer education, says David Pegg, a master at Bedford School. Here he sets out several principles which should be

applied in developing such a policy, and by way of provoking argument, offers ten proposals. These proposals, he says, would cost a lot of money; but would

make the best use of the fund of expertise that already exists in schools in this country. The author is a member of the Schools Committee of the NCS.

A ten-point plan for feeding the hungry sheep...

"The hungry sheep look up and are not fed... But that two-handed engine at the door, Stonda ready to smite once, and smite once more."

Millon, Leycids.

IT IS fanciful to suppose that Milton had a vision of the power of the binary computer. But the fact remains that we now have a once-for-all chance to teach people of all ages about that power and how to use it. At last the government is ready to feed the hungry sheep, with the aid of £60 million.

What proportion of this vast sum will be spent on computer education in schools is not yet clear. But how will it be spent? Will it be largely wasted, in common with many other disbursements?

Firstly, let me make clear what I understand by "computer education". It would be more exact to say "education about, and with the aid of, information technology". If it were not such a mouthful, there are three main sub-divisions: Learning how to live with the new technology; learning skills in the development and applications of devices and systems; and harnessing information technology to aid education generally.

The first applies to everyone and extends to such subjects as the use of increased leisure and the need for continued education throughout life. The second relates to the need to produce a skilled force of designers and technicians. The third is concerned with a radical reshaping of education methods.

A central policy is needed to cover the three groups. So far this has not, for a variety of reasons, emerged. Warnings were given at the 1970 IFIP Conference in Amsterdam, but they were largely unheeded. In 1971 (Computer Weekly, June 17, 1971) it was prophesied that the failure of politicians to give adequate support to computer education might well prove to be a prescription for Luddism in the 1980s.

Since then much pressure has been applied from below with very little positive action except in computer aids to learning. But the failure of politicians is only a reflection of the ignorance and dislike of computers in society. The outlook would certainly be bleak if there were not many teachers with plenty of experience in running courses on computers and how to use them. The growth of microelectronics has sparked off tremendous interest in schools. Many would like to have their own computer and quite a few have already bought them.

A branch of the Computer Education Group called MUSE (Mini-computer Users in Secondary Education) has expanded almost ten-fold in the last two years. Its purpose is to help schools and colleges to use small computers (minis and micros) effectively. It holds meetings throughout the country to give advice and to exchange experiences on hardware, software, teaching methods and uses of computers.

This is merely the tip of a large iceberg. In the major cities large networks have been developed, with terminals (and in some

cases microcomputers) linked to mainframes. In towns and rural areas there are more modest systems.

But there are many areas where little or nothing is being done because the LEAs do not have go-ahead advisers, and there are no experienced teachers in the schools.

Within schools themselves the great majority of teachers regard the computer as an unwelcome interloper. Higher authorities have little knowledge of where, or how much, teaching is being carried out. One urgent requirement is a country-wide survey on this matter.

What then can we learn from the above observations? First, that there is more knowledge of what is needed at the grass-roots than among higher authorities. Secondly, that there is little communication between these two. Thirdly, that the resources available and the educational needs differ widely both geographically and in types of schools (of different sizes and age-groups).

One mistake would be to equip very quickly a large number of schools with their own microcomputers, regardless of the lack of experience of the teachers in some of these schools. This may soon be happening anyway in default of a policy, because parent-teacher associations are increasingly buying micros for their schools.

Above all, there is need for a great increase in initial and in-service teacher-training for computer education. This should apply to all teachers. If almost every child should be given some contact with micro-technology, so should almost every teacher.

When it comes to taking decisions on how to spend the promised millions, the government should take into account the knowledge acquired by teachers over the last 10 years. There must also be opportunities for continued experiments by teachers.

With developments in cheap mass storage, many schools in 10 years' time will have their own distributed systems. Only by trying different methods now will we achieve the best results.

But there are many possible pitfalls. One mistake would be to equip very quickly a large number of schools with their own microcomputers, regardless of the lack of experience of the teachers in some of these schools. This may soon be happening anyway in default of a policy, because parent-teacher associations are increasingly buying micros for their schools.

Another pitfall would be to build very large educational networks using highly centralised software packages designed for computer-assisted learning. The costs would be unacceptably high, and the educational value limited. The main need is to balance



By DAVID PEGG

advantages of decentralised organic growth against those of centralised control and co-ordination. The latter gives economy of effort, pooling of information, avoidance of repeated mistakes, economies of size and provision of the best. Decentralisation, however, encourages individualism, variety, versatility and initiative and avoids rigidity, bureaucracy and over-complication. A judicious blending of the two is therefore required.

The Open University has done remarkable work in using computers in education. Its experience could be harnessed to computers to assist learning of proposing technologies for this purpose.

1. The National Centre for the Development of Education should be given the task of encouraging the use of education in those areas, outside the scope of the Schools Council and the Computer Education Technology, particular reference to software development.

2. The British Computer Society should monitor work, and advise the Government when it is concerned when it is concerned that urgent action is needed.

3. An advisory centre for computer education in schools should be set up, to act as a centre for information, coordination, and initiation of evaluation of projects.

4. A special priority is needed in the development of courses for teachers, both in colleges of further education and for in-service training. The Department of Education and Science should take an active role in this.

5. The Department should take positive steps to encourage LEAs to do more on computer education, to advise them with funds, and to assist them with funds.

6. Local educational centres should be set up, throughout the country as far as possible, to provide a central point of contact for teachers, and help schools on technical and technical problems, and provide a central point of contact for teachers, and help schools on technical and technical problems, and provide a central point of contact for teachers, and help schools on technical and technical problems.

7. The generally accepted policy decisions, on the method of curriculum development and the policy-making, should be decided by teachers, and the policy-making, should be decided by teachers, and the policy-making, should be decided by teachers.

8. The Schools Council should be asked to advise on ways to encourage curriculum development in computer education in schools.

Midland soon to try out cheque image processing

WHAT could turn out to be a major revolution in UK banking technology has been started by the Midland Bank, which has announced that it will begin experimental cheque image processing later this year.

Cheque image transmission networks could eliminate much of the huge cheque handling and sorting workload currently borne by UK banks.

The Midland is working with Burroughs on the project, and their co-operation should parallel fairly closely the joint development of the Baner cheque image system in the US by NCR and the Bank of America (CW, November 9, 1978).

Burroughs and NCR are both extremely reluctant to reveal the technical details of their respective systems, presumably because the business that could go the way of the manufacturer that produces the better system is potentially enormous.

The importance of the development to Burroughs is underlined by the fact that the Midland is dealing directly with Burroughs in the US.

A spokesman for the Midland Bank research department in Sheffield told Computer Weekly that Burroughs and the Midland were attempting to solve the same problems as NCR and the Bank of America, and that the technologies they were using were similar. But he stressed that there was no direct contact between the two projects.

Both systems will involve some form of cheque scanner at each bank branch, and problems to be overcome in the development of both systems include how to extract computer processible data from the graphical and pictorial information that makes up the rest of the cheque image.

Most importantly, techniques for complex sorting of cheque images will have to be perfected before the existing mechanical sorting of paper cheques can be made obsolete.

The Midland expects to install

an experimental Burroughs cheque scanning system at one of its area offices within the next six months.

One of the main aims of the experiment will be to establish how easily the equipment could be used by non-technical bank staff in a branch environment.

The system will operate in parallel with existing cheque handling procedures.

The US has thousands of banks, each confined to one State and most of them very small.

The Bank of America is exceptional in that it can justify a cheque image network for clearing its own cheques because it dominates the banking business in California. It is believed to be the biggest bank in the world.

The Midland Bank also believes that it could justify a cheque image network for transmitting images between its own branches — at least in the short term.

The UK is likely to have a national cheque image network before the US, because the UK banking market is dominated by four large clearing banks while

new progress in manufacturing, in the view of the Institute, and this study aims to find out why, in the field of microelectronics particularly, with the objective of influencing government policy.

James Northcote, a senior fellow at the institute, who will run the project day-to-day, describes the approach to be taken as consisting of case studies of individual firms, to discover the obstacles to change and the advantages that can accrue. Some firms that are notably successful

in modernising will be looked at, as well as some that have fallen behind.

This detailed approach is the institute's speciality. In contrast with other research bodies that concentrate on macroeconomic effects, looking at broad statistics from an economist's point of view. Several industries will be covered, but only the aspect of applications of microprocessors.

Money for the study, about £100,000 will come from charitable bodies, which the Institute is now starting to canvass.

FAILURE of British industry to take up new technology, specifically microprocessors, is to be the subject of a study by the Independent Policy Studies Institute, Chairman of the study steering committee is Sir Charles Carter, whose committee of inquiry into the Post Office produced the controversial Carter Report, and the institute aims to get several other eminent people to join him.

The UK is consistently less successful than its industrial competitors in incorporating

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Tesco bureau offers ICL to IBM conversion service

SUPERMARKET group Tesco has set up a bureau company, Tesco Management Services, which is offering a specialised ICL to IBM conversion service. This is based on the know-how acquired while about 700 ICL programs, mainly in Cobol, have been converted for running on the group's 8 Mbyte IBM 3032.

Tesco, a prestigious ICL customer, began moving IBM hardware when the 3032 was installed last July, backed up by a 102,000 Mbyte 3550 mass storage system (CW, August 3, 1978).

Plans to add a 3031 to the system have been cancelled while a wide range of options is considered. DP director Borry Grange said the possible combinations included a 303X, one or more of the 4300s, or something from the expected H series due in about a year's time. Another option is to front-end the 3032 with a 4300. The final choice, says Grange, could depend on a great deal of IBM pricing policies which could be affected by the advent of the H machines.

Tesco has some detailed long-term plans including an SNA network supporting about 10,000 terminals to be installed throughout the UK during the next 10 years. Of these about 8,000 will be point-of-sale units.

Already three Computer Automation Systems (CAS) September 28, 1978) have been

installed in depots at Milton Keynes, Crick and at the group's Chestnut HQ ready for the start of the SNA network in the late summer. A 3680 supermarket system has been installed at Wellingborough, Northants, and a 3650 PoS system at a Home 'n' Wear store in Huntingdon. Both systems are linked to the 3032 for overnight handling of data from the in-store processors.

The establishment of the bureau company is part of the group's overall plan for computer use, and in addition to the conversion service it will sell machine time on the IBM hardware and the three Tesco ICL 1904S systems as they are progressively released from in-house work as the 3032 takes over, and offer a quality printing service using two IBM 3600 laser printers. This is backed up by a forms overlay service including the production of layouts required by bureau customers.

Responsible for the bureau operation is Ian Bell who has been named business development manager and appointed an executive director of Tesco (see page 10). He told Computer Weekly that for the task of converting Tesco's programs to run on the 3032 a comprehensive range of procedures to handle each stage of conversion had been built up. These, he said, could be used not only for ICL-IBM conversion but for converting from most other makes of mainframe to IBM.

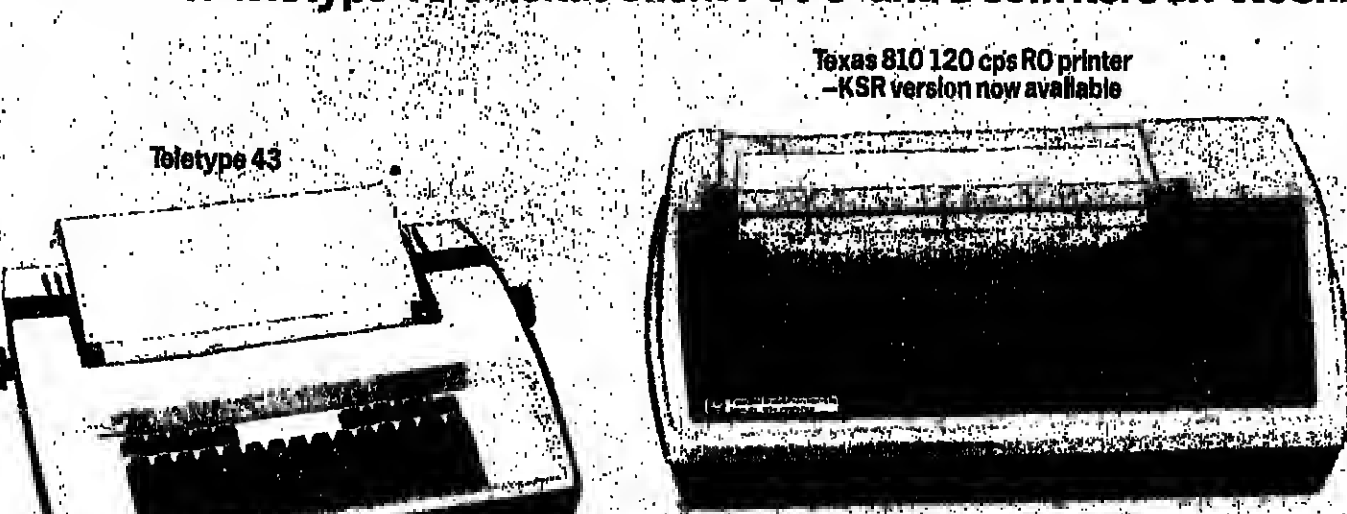
Bell said he would be recruiting staff for the bureau company and he will also be able to call on some of Tesco's 450-strong computer department to meet special needs.



Bell

WHY WAIT FOREVER FOR YOUR TERMINAL?

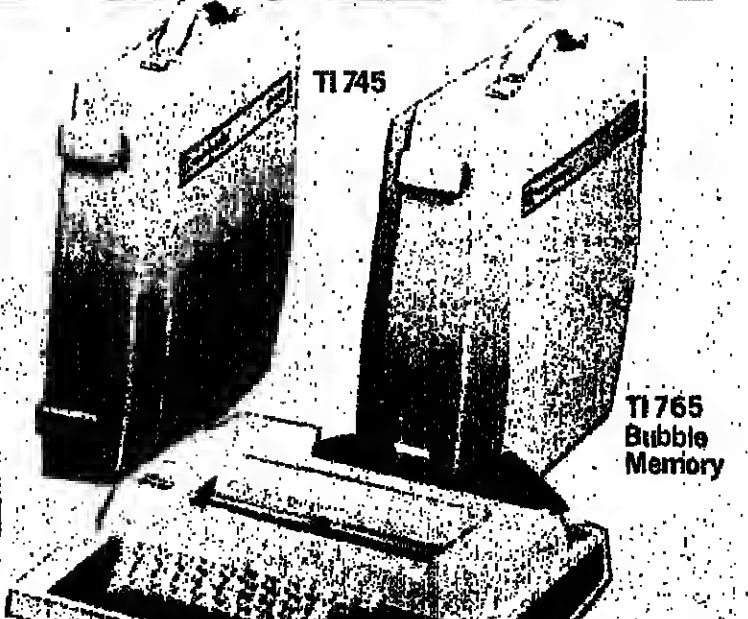
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OP SPOT

THE manner in which a person dresses will, in the long-term, affect his attitude towards work. Thus, an operator who dresses in an over-casual or sloppy manner, will come to approach his operating in a similar way.

That view was put to me by a manager. It's an interesting thought, because at some sites the operators are allowed to please themselves, more or less, with regard to dress, while at others they are instructed to wear suit, collar and tie, and on no account to dress casually.

Contributing to this odd state of affairs is the fact that the computer room is a hybrid environment. It is neither office nor workshop, but a mixture of the two. At one moment the operator might be sitting at the console, dealing with a stream of system messages, and the next mounting a tape or disc, loading stationery on the printer or even cleaning that device.

So what sort of dress is right for the operator? In my view, the answer is smart but practical; comfortable but safe.

It might seem odd to relate

Do careless dressers make sloppy workers?

dress to safety, but in the context of the computer room it is an important consideration. Card readers, for example, are capable of digesting unusual forms of input, such as ties and long hair.

On one occasion, a friend of mine, an electrician, was working in the computer room when a girl's hair was dragged into a reader as she was inputting some cards to the device. Fortunately, he had the presence of mind to press the stop button and so prevented a serious accident. Nevertheless, her hair had to be cut, and she was taken to a local hairdresser who finished the job.

Safety factors aside, managers

should remember that operators have to perform some rather dirty tasks during the course of their duties. Working the printers is the best example. It is usually the responsibility of the poor old trainee, who has to hump dusty boxes of stationery about, change ribbons and clean the devices in addition to responding to system requests for paper changes.

Some sites provide the operators with dust jackets, to be worn as they operate the printers. At installations where that is not the case, the management should think again or, alternatively, award the staff an allowance to cover extra cleaning bills.

But I must take up my manager friend on his view that over-casual dress has an adverse effect on attitude. In my experience, that is not always the

case. An operator I once worked with was noted by his colleagues for his ability to sort out system problems, and not for his appearance or attitude. Many a time he would solve a problem in the computer room — and thereby prevent an additional IPL, or system load — after all the so-called experts had failed.

To me, that example is a sad reflection on the fact that, at

many installations, the management places greater emphasis on appearance than technical ability when considering promotions.

At some sites, the operators are expected to wear suits because they often get visits from members of other departments within the company. Fair enough, I suppose, but if that is the case the operators should at least be allowed to please them-

selves on the evening shifts.

Banks are notorious for collar and tie. The image of the operator is expected to be uniform regardless of the shift. At one such site an operator turned up for his shift dressed in blazer, trousers and a string of brightly-coloured beads. The manager was time in telling him just what bank expects from employees.

By way of contrast, operators at university sites are such interference to management. They are allowed to please themselves in regard to dress and it goes a long way towards creating a maintaining the atmosphere which prevails at such installations.

By Bernard Allen

Games operators play can be of benefit

WHILE at the West London Installation of Marks and Spencer, I noticed a darts board and backgammon set in the operators' rather plush rest room.

One of the operators told me that both games are quite popular with the operations staff as they can be completed within half an hour and so are ideal for coffee breaks.

In my view, such pastimes are important as they take the operators' minds off the workings and problems of the computer room and thereby help them to relax during breaks.

At one installation I know, quite a sizeable card school grew up. After a time several of the operators started playing for money and on one occasion one of them won £20 during a half-hour break.

And you could always tell which of the lads had come out on top during a card-playing session — he would be the one who returned to the computer room grinning like a Cheshire cat.

Table tennis is another game popular among operations staff. At an installation where I once worked we used to play doubles.

Table or bar football is another good game. It's just right for coffee breaks. At an installation where I once worked, we

used to play it day and night. During breaks, that is.

Working shifts always gave us an unfair advantage over the programmers in this regard. They would challenge us to a game during the day shift on the understanding that the losers would pay the 5p cost. Need I say that we never paid for a single game.

Seriously though, aside from being a source of amusement, these games did a bit towards improving the relationship between the operators and programmers at the site.

At another installation, operator/programmer relations were poor and communications practically non-existent until five-a-side football matches were played between the two departments.

The results were quite amazing. Kicking each other black and blue, and having a drink together afterwards, taught the operators that programmers are human beings, and the programmers realised that operators are individuals and should be treated as such.

After that, the operators and programmers no longer grunted at each other but actually said "please" and "thank you" — that's something for managers to think about.

HINT OF THE WEEK

OS Modify helps keep track of punched output

MANY of the hints which have appeared in this column concern the use of operating system facilities to save the operator a lot of unnecessary effort.

This week's offering also tells into that category. The subject is the IBM OS Modify command which may be used to good effect in relation to punched output.

After a Writer procedure has been started to a punch unit, it will select jobs from output queue 8, the accepted norm for punched output, and transfer it to the assigned device.

And as the Writer selects each job from the output queue, the system sends the operator a message including the address, or identifier, of the punch device and the time the job was output. The operator may then

remove the output from the device at his leisure.

This all works fine until, say, half a dozen jobs are punched in quick succession on the same device. Then the operator without a lot of time "splitting" the output, i.e. until printed listing, punched output has to be headed and trailer label preceding and following each job.

By using the Modify command, the operator can instruct the Writer to pause after it has caused a job to be punched. The command has the following format:

F xxx, Pause = Datepat
In practice, it is often best (not the main console operator remains at the station and deals with the system messages, while one of his colleagues actually removes the punched output from the unit.

We welcome your views

OPERATORS often complain that nobody listens to their point of view. Well, Op Spot is listening and Bernard Allen would like to hear your opinions and ideas on all matters relating to computer operations.

Your letters should be sent to Op Spot, Computer Weekly, Dorset House, Stamford Street, London SE1 8LU. Telephone calls are equally welcome and Bernard can be contacted directly on 01-261 8035.

Are you still locked in by that micro chip bargain you bought a year ago?



You thought you were saving money. And ever since you've been losing time, time, time...

NEWS IN BRIEF

Nixdorf plans in Ireland

PROBLEMS over building costs for a Nixdorf plant in Dublin have now been resolved, and the West German small systems company is planning production in Ireland later this year.

Nixdorf wanted a factory built to the same specification as a new plant at its Paderborn headquarters, and misunderstandings between the company and the Irish contractors made it appear that the Dublin plant would cost considerably more per square foot than the German one (CW, October 20, 1977).

Moscow scores

THE two "unidentified IBM machines" which will do the actual scoring at the Moscow Olympics prior to the information being disseminated by two ICL 2804s (CW, February 22), are 370/148s.

First outlet

FRANCHISING, long established in the fast food market, has reached the personal computer business and the first European outlet of a US franchise chain called Computer Land has opened in Brussels.

Powerful processor

THE new IBM 3880 disc controller introduced with the IBM 4341 (CW, February 8), is a powerful processor which could be programmed as a back-end database system.

This has emerged from editorial details revealed by IBM, which says that the 3880 is based on a five million instruction per second eighth data word micro which uses 18-bit micro-instructions. The micro is an ECL

bipolar device which uses the same basic technology as the processor chips, and is made from a 1400-gate master slice. IBM says that because of its specialised central application, the instruction set consists principally of branch and register-orientated instructions.

The intrinsic power of the device leads observers to believe that the 3880 could form the basis of a back-end database.

Nascom 1 microcomputer kit price reduced

THE price of a Nascom 1 Z80-based microcomputer kit has dropped from £187.50 to £165, and the long-awaited Zeap editor and assembler program which runs on it is now in the shops.

The price cut for the kits was meant to coincide with the availability of ready-made boards at £210, but these have been delayed by shortage of chips including 74LS163 binary counters and 81LS97 buffer chips.

Sales director Kerr Borland said, "We've barely had enough of these chips for the kits we are sending out. The ready-made boards will double demand because many people, schools in

particular, want to do software but not soldering. We had hoped to have started building ready-made Nascoms by February 14, but now it will be the middle of March."

Zeap, the 3K byte assembler program written for Nascom by Paul Chapman and Geoffrey Roughton of Sigma Accounting and Management Services and announced at the PCW Show last year, has finally made it into dealers' shops.

Costing £32 on cassette it runs in Nascoms with expanded memory, as do Tiny Basic and Super Tiny Basic which become available at the same time as the memory expansion kits in January.

CSA GOES INTO WORD PROCESSING TRAINING, AND INTERNATIONAL ISSUES

Dol orders office automation study



DIANA DUGGAN... "spreading the gospel about word processing."

TO promote awareness and understanding of office automation among potential users in industry, a consortium of consultancy firms has been commissioned by the Department of Industry to carry out a three-phase study project.

Operating under the umbrella of the Computing Services Association, the project additionally aims to see that more text processing consultants are trained for the future, and that the difficulties users encountered in bringing in data processing are not repeated with office systems.

The five firms are Arthur Andersen, Langton Information Systems, Logica VTS, Peat Marwick Mitchell, and P-E Consulting Group.

Phase One will cost £40,000 and will consist of R&D by the

cost and the Department of Industry will pay the other.

From these studies should come a better idea of what offices should be like in the 80s. The designs of applications that are developed will be fed back to word processing manufacturers to help them in their product planning. Moreover, a wider field than just word processing will be considered.

Facsimile, COM, Teletex (CW, February 22), Prestel, and electronic mail will also come in. Heading the project is Colin Leeson of Langtons, and Diana Duggan, of Logica VTS, is technical leader. She describes the basic idea as "spreading the gospel" about word processing among potential user organisations, both to improve the efficiency of UK industry and also to promote our own office systems manufacturing sector.

She also hopes it will help to avoid "the horror people went through with the introduction of computing." In addition she says there should be a great deal of interesting data coming out of the studies, to do with how firms' communications work at present, how much of their mail is internal and how much external, and so forth. Training of new consultants is also very important.

firms themselves, mainly to find prospective clients for Phase Two. In this each consultancy will carry out an in-depth study of one substantial commercial or industrial firm that is a potential user of electronic office systems, finding out how it works, and how office automation could be applied to it, and designing text processing applications.

This will cost about £20,000 per study and since the client firm should benefit considerably from the information gained, it is expected that it will pay half

Education division set up to develop training policy

SHORTAGE of computer staff, particularly among service firms which are currently looking for 3,000 people, has prompted the CSA to establish a new division for education and training, and to appoint a full-time training officer.

The division's first tasks will be to develop a training policy and schemes for computer-aided training, and to talk to government departments, universities and polytechnics about the industry's needs.

Alan Thomas of Data Logic says the UK has a particular problem in this area, with a "haphazard system" of training which does not go well with our rapidly changing industry, and a "gap in understanding" between industry and the education system.

For instance, he says, many university staff still think that engineering training is necessary for careers in computing, while recent studies have shown that arte people perform just as well in the service industry as science people.

Alan Benjamin, CSA director-general, adds that the idea of conversion courses for people with experience in other fields is "totally neglected," and this is

an important area that the CSA must promote. Submissions are to be made to the Manpower Services Commission on plans for courses of high practical content, he said. The Training Division will also carry out a research project into the contentious question of DP aptitude tests.

On the international front, the CSA is starting a dialogue with its counterpart associations in Europe, the US, Canada, and Japan on important matters of common concern such as national information policy, government regulation, unfair competition. Customs duties on data, and cross-border data flow. The question of software copyright is also being dealt with; the CSA is to hold a one-day seminar on this in June.

There is a proposal that European countries levy a tariff on magnetic tapes according to the value of the information content, and the CSA is concerned about the effect this could have on business, and about the difficulty there would be in assessing such value.

Plans are also being drawn up for the Second World Computing Services Industry Congress, to be held in San Francisco in June 1980.

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In this reasonably simple world of small programs — say, 512 words — price is still a pretty good criterion. But once you're up in the 4K/8K numbers, there are a lot more important questions to ask.

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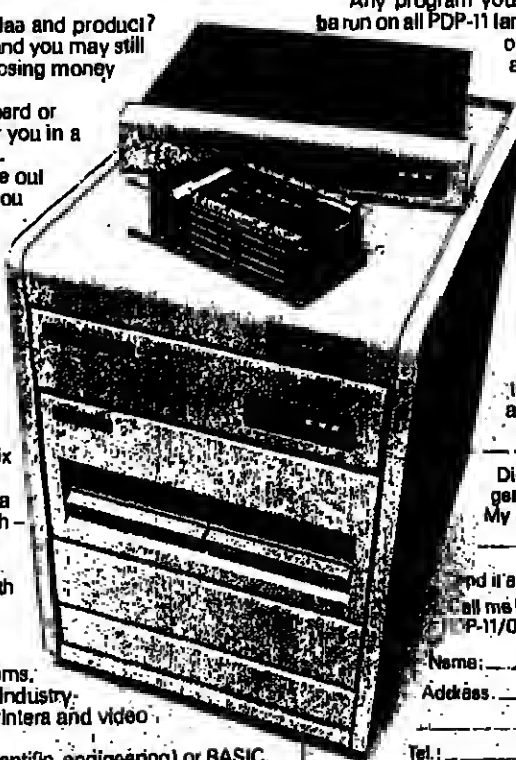
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Into battle — by computer

AS a result of recent battle simulations, the British Army's Battle Group practical training session at Bovington is to continue developing its use of computer in training troops.

Using an Olivetti P8050, the group has been putting regiments such as the Grenadier Guards and Royal Fusiliers through their paces and, according to an Army spokesman, "all our customers have been impressed."

"The whole exercise is done indoors at Bovington," said the spokesman, "and it is a brand new concept. Normally, such battle simulations are done with the real thing out on the field."

At present the Olivetti system only produces "mathematical" simulations of battle, but there are plans to move to a larger computer and install graphic screens to keep track of the "battle."

PEOPLE AND EVENTS

Directorships for three Tesco men

IN addition to Ian Bell (see page 5), three other Tesco computer men have been appointed executive directors.

Frank Farrell, 34, came into the group when the Value Grocery chain was taken over in 1968. Among the posts he has held is that of operations manager and he is now responsible for all technical functions, including the software and database groups, and the communications network.

Richard Gardner has been with the group 14 years, starting as a payroll clerk and then progressing through operations and programming departments. He is responsible for the operation of the sites at Cheshunt and Winsford, Staffs, where there is an ICL 2803. All terminal installations at warehouses and depots are also under his control.

Robert Pearson joined Tesco from IPC in 1974 as a senior systems analyst. His area of responsibility covers all applications and he is also involved with systems development.

These appointments follow the Tesco tradition of promotion from within and the new directors report to Gerry Grange, director of DP, who was appointed from the department. He in turn reports to Donald Harris, a main board director who was the DPM in Tesco's early days. Harris now deals with all computer operations and is also responsible for Tesco's 47,000 staff and general administration.



Grange

Roger Styrer has been appointed general manager of Jaserco's bureau services division. He was formerly operations manager, and has been with the company since its formation in 1971. Malcolm Hoppling, promoted to the position of general manager of the company's business systems division, was most recently employed by BOC Datasolve as regional controller for customer services. Barry Briggs has left DEC, where he was a senior sales engineer, to become general manager in charge of sales and marketing of the Jaserco bureau and Jemini email business computer system.

Alfred Baginall has joined Wright Air Conditioning (Birmingham) as an area sales manager. He was formerly a senior design engineer with a Canadian air conditioning company in Toronto. John Eaton has been appointed an area sales manager for the area south of Birmingham. Previously he worked as overseas sales manager for the company.

Keith Swain has been appointed by Jaquard Systems as a marketing support representative. He will be responsible for supporting the current software packages available for the Jaquard range of videocomputers. Swain was until recently computer manager for the John Wilmott Group of construction companies.

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Mary O'Toole has been appointed director of Harrison Computer Services (Ireland), with responsibility for the marketing and development of financial systems. She is promoted from her former position of consultant.

Alexander Gilles, currently senior vice-president, finance, has become president and chief executive officer of Modular Computer Systems. He succeeds Kenneth Harple, who has resigned from these positions and will continue as a consultant to the company for one year. Gilles will continue as chief financial officer on an interim basis.

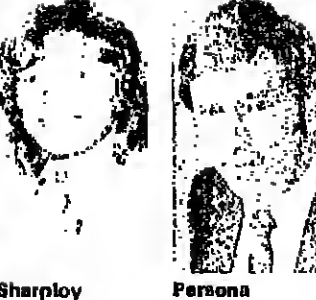
Owen Dalton has been elected chairman of the Irish Computer Society for 1979. He is a senior executive of Hospital's Trust, and also a director of Memory, Ireland.



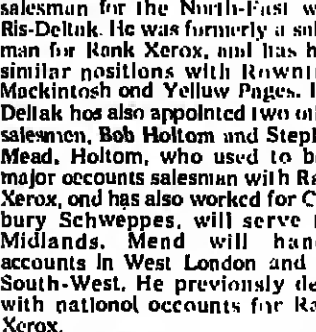
Foundation stone for the new EMI scanner building at Christ's Hospital, Manchester, was laid last month by journalist and cancer patient Mrs Pat Saad. Over £1.8 million to provide the equipment, the building and all running and staffing costs, has been raised by the Pat Saad Appeal Fund, launched in March 1977. Assisting Pat in the ceremony were 64-year-old Olive Snowden, of Blackpool (far left in our picture) and nine-year-old Nicola Farrow (far right) of

DIARY

- MARCH 2 The renewal of interest in machine translation. R. Johnson, BCS National Language Translation Group, King's College, Strand, London WC2. 18.30.
- MARCH 8 Mascon — a modular approach to software construction, operation and test. BCS East Anglia Branch, Eastern Electricity board, Russell Road, Ipswich. 19.00.
- MARCH 9 Voice Input — the next computer revolution. J. Saunders, BCS NW London branch, Railway Hotel, Greenford, 19.30. Ward processing. M. Ward, BCS Cheltenham and Gloucester branch, Gals Clail, Fairmile Gardens, Gloucester. 18.30.
- MARCH 9-7 Martex '79. Europe's first specialist exhibition for the testing and used computer business. Folbridge Hotel, East Grinstead, Sussex. Organized by Walker-Edwards Ltd., 54 Dundonald Road, London SW18. Tel. Tony Ellis on 01-543 1148.
- MARCH 7 Air traffic control. A. McLean, IESTE, Electricity House, Wellesley Road, Croydon. 19.30.
- Computer frauds. K. K. Wong, BCS Humberside branch, Wilberby Manor Hotel, Wilberby. 19.30.
- Westing. BCS Disabled group, BCS HQ, 13 Mansfield Street, London W1. 18.30.
- Data analysis Part II. I. Palmer, BCS Octavia users group, New Engineering block, University of Central London, London WC1. 14.00.
- The Chinese army approach to powerful processing. D. Parkinson, BCS N. Staffs branch, Computer Centre, Keele University, Keele. 20.00.
- Visit to Traffic Control Centre, BCS Wolverhampton branch, Waterloo Road, Wolverhampton. 18.15. Numbers restricted. Contact Geoff Hamer, Wolverhampton 2771, ext. 44.
- MARCH 8 Meeting, 19M CUA management group, White House, London. 10.00.
- Communication with software. P. Macdonald, BCS West Herts branch, Heath Park Hotel, Hemel Hempstead. 18.30.
- Packet switching networks. BCS Kent branch, St. George Hotel, New Road Avenue, Chislehurst. 18.30.
- Computers and the smaller business. BCS Oxford branch, Oxford Europe Mo-



Anne Sharpley has been appointed a director of Telecommunications, responsible for technical support for users of the company's TIS product. She joined Telecommunications in 1974 as project manager, and was responsible for installing the first TIS system in Australia.



Nicholas Burrell has become a salesman for the North-East with RLS-Deltak. He was formerly a salesman for Rank Xerox, and has held similar positions with Rowntree Mackintosh and Yellow Pages. He-Deltak has also appointed two other salesmen, Bob Holton and Stephen Mead. Holton, who used to be a major accounts salesman with Rank Xerox, and has also worked for Cadbury Schweppes, will serve the Midlands. Mead will handle accounts in West London and the South-West. He previously dealt with national accounts for Rank Xerox.

Call for papers

THE 8th International Symposium, Man and Microcomputers and their applications, will be held at the University of Zurich, on May 22-25. Deadline for papers is March 1, and three copies of a 200 word abstract should be sent to the Secretary, MIM 78, PO Box 354, CH 8003 Zurich, Switzerland.

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By Judith Morris

Director for Prime

APPOINTED managing director of Prime Computer (UK) is Robert Knott. The company is a subsidiary of Prime Computer Corporation, which is based in Framingham, Massachusetts. Knott joined the company in 1974 and held several positions before becoming executive for Central London and the Home Counties. He is now the managing director. He promotes the launch in January of new Prime systems, and is responsible for sustaining the company's expansion.

Duncan Black has been promoted from the position of managing director to managing director for the computer bureau, which is the NCB. Previously he was a manager in charge of product development.



Black

Sally Hoffman has been promoted to managing director of the company. She was formerly a systems engineer with IBM. Malcolm Chadwick has recently opened a branch office in London. He is a systems engineer with IBM.

Malcolm Chadwick has recently opened a branch office in London. He is a systems engineer with IBM.



DME 'not an escape clause'

THE final message from Robin Knott of the BBC was to urge users not to miss out on VME/B — which led neatly to the next speaker, Peter Turner, ex-ICL and now with Safe Computing. Turner's message was that DME makes moving to 2000 from 1800 or System 4 so easy that users may never take the VME plunge.

He had some harsh words for the computer Press in this context. "Before DME arrived, the computer Press criticised ICL because conversion was so difficult. Now ICL gets criticised because in some cases programs do not run efficiently under DME than under George III or under VME.

"The DME versus VME issue in the Press exacerbates the problems of choice facing the user," he said.

"DME is a transition, not an escape clause. From blue or white to orange. It is clear that the time of least resistance is DME. But at the end of it, all you have got is an orange 1800. 2800 under VME/B or K has so much more to offer." He cited program development using IDMS, and the data dictionary, as examples.

"Yet it is not unlikely that new applications will be developed under DME. One cannot condemn this out of hand without knowing the facts, but it seems to me to be intellectually Luddite as a policy."

User reactions were decidedly mixed, with one commenting that there might have been a 14-fold improvement in VME, but it still performed at only one third of expectations.

Consultant Fred Lamond commented that ICL designed 'intellectually' satisfying machines, and they expected them to be used in the "right" way. "Computers are a means to doing productive work. There is no point in converting if it is cheaper simply to get in DME."

ASTMS wants change in attitude to work

ONE of the attractive features of the 2900 Club is that it provides a forum for discussion of affairs outside the narrow scope of the DP department. A case in point was the invitation of Barrie Sherman, research director at the white collar trade union ASTMS, to speak at last week's meeting.

He chose as his theme the impending information technology revolution, perceptibly recognising that the problems and opportunities stretch far beyond those presented by the microprocessor.

"The microprocessor will affect almost every industry and service. It cannot be boxed off like the motor car or the aeroplane: that is now a relic to hide. Also, unlike other 20th Century innovations — most of which are user oriented — it acts on the production side, so that we can no longer say that high growth equates with full employment."

"Nevertheless, we have no choice — we have to apply microelectronics. But we must tackle the social consequences of the coming revolution now."

Sherman called for a complete change in attitude in order to tackle the problem.

"We must change our attitude towards work and promote it. Companies must come to regard people who leave as an investment in the future, and good for all. If they try to do it the other way, by natural wastage, that just creates another problem, that of unemployed school-leavers."

Tory election victory could bring takeover bid for ICL—broker

WITH ICL growing faster than the national average, and looking undervalued on its current share price, there is a fair chance of a takeover bid in the event of a Tory victory at the next General Election.

That is the controversial view of Simon Knott, partner with stockbrokers Greene and Company.

Speaking at the 2900 Club meeting in London last week, Knott suggested that the National Enterprise Board's 25% stake in ICL could well be offered for sale by a Tory government, triggering a takeover bid.

"If the NEB could find a buyer who was prepared to pay a premium on the ruling share price — perhaps Sir Arnold Weinstock of GEC — it might well want to sell."

Knott expressed concern at the effect of the £40 million loan from the government, repayable under a complicated formula which would be triggered if ICL's profits exceeded 7½%.

"If ICL were to buy an American company with 12% profit on turnover, the excess on that company's profits over 7½% would be owed to the government."

"The terms mean that if ICL is to avoid repaying money to the government, it can only increase profits by increasing turnover, not by increasing margins."

"This is a severe handicap. It means that it cannot make a rights issue of shares to raise money without immediately increasing turnover, so any cash it needs must be borrowed. If I were on the board of ICL, I would do a deal with the government to get the pay-back milestone removed. It is not good for a company to be turnover-conscious rather than margins and profit conscious."

Looking at the split between sales and rental business, Knott noted that ICL did about £250 million business in selling computers and £235 million in the rental and service side. He estimated a £56 million income from rental assets of £142 million, and a £20 million profit from this business.

"A buyer would be prepared to pay £200 million for this business alone, and get the manufacturing and sales businesses thrown in for nothing," he said.

"Big companies like BOC are increasingly looking at computer services, and the City

would like to see ICL looking to the services market for its growth." (Knott should be encouraged by the fact that on his appointment as managing director of ICL, Dr Chris Wilson named services as the most important growth area for the company.)

Knott would also like another US acquisition, but thought that the City would be unhappy at too much capital investment on the Continent. Dunlop's painful experience with Pirelli had given European forays a bad name.

Commenting on Knott's view about a possible takeover of ICL, Graham Meek, electronics industry analyst with Edinburgh stockbrokers Wood Mackenzie, was surprised at the mention of GEC as a possible bidder. "GEC

sold its ICL shares at a loss, and I can't see it wanting to come back again now," he said. "It is difficult to see another British company which has the muscle to buy ICL and would really believe that it could run the company better than the present management."

Many in financial circles also regard the need to keep margins below 7½% as a trivial problem, noting that the computer industry is very demanding of research and development expenditure. Indeed ICL is anxious to reduce the proportion of turnover that it spends on R&D, which indicates that the company has identified plenty of other necessary expenditure which will continue to keep margins just below 7½%.

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TIM PALMER REPORTS ON THE 2900 CLUB

Brick-bats and bouquets

AN even-handed distribution of brick-bats and bouquets for ICL made up the contribution from Robin Rodin of the BBC.

The brick-bats, hurled with feeling, were inspired by his experience with the 2800 which the BBC installed in May 1976. "It must never be open again!" was his heartfelt reaction to what occurred next.

"The machine was handed over to us in July 1976, and we intended that 80% of the work, mainly running on very satisfactory but archaic 1964s, should be transferred by Christmas of that year. Even now, I don't believe that 60% has been transferred."

We found that the 2800 worked — every new and the We'd submit a job any day and it didn't run. We'd resubmit it next day and it worked. We were getting a mean time between failures of six or seven hours, but there were long periods when it was only 2½ hours.

"It's all very well to say that, with a new multi-processor operating system like VME/B, you cannot expect it to work straight away, but the kinds of problems that we suffered have a great effect on staff morale, and can be disastrous for user confidence."

Rodin contrasted the VME/B experience with what happened when he worked in an installation which got a new 1803 in 1966.

"It was a very basic machine — but it worked. The 2800 should have arrived with a basic subset of VME/B, and the additional facilities should have been added in a phased manner. The big bang approach just doesn't work."

Admitting that it sounded as if he was talking about a completely different machine, Rodin went on to praise the IDMS database system on the 2800, describing it as one of the best pieces of software ICL had ever introduced.

Now it's as easy to buy an add-in memory board as a can of beans.

THE first real test of the government's reluctance to breach its own pay guidelines and comply with the results of a pay survey showing that the public sector has fallen way behind in the pay

stake was the one-day stoppage last Friday by the Civil and Public Servants Association and the Society of Civil and Public Servants. On the eve of this hammer-blow to what these two unions

view as the "rusty wheels of government machinery" Ken Thomas, general secretary of the CPSA, discussed with ROBIN WEBSTER the logic behind their decision to act now.



KEN THOMAS: "I have said before that the public sector is in a bit of a bind."

Why we are bringing the government of the country to a halt....

ROBIN WEBSTER: With the CPSA and the SCPS representing the two largest trade union bodies in the Civil Service, the amount of damage you could inflict on the government is enormous. How far are you willing to go to win what you feel are the correct and long overdue pay increases for your membership?

KEN THOMAS: Well, there is a paradox at work here. Some people think that we have no muscle at all, but the real problem is that we have too much muscle and therefore can't use it. We have a responsibility to the country and therefore are using our power selectively and carefully. Both the SCPS and ourselves are complementary. If we took strike action without their membership's support and they went in to work it would ruin anything that we had planned, and vice versa. So what is unique in this situation is that this time we are working together. Between us we control a number of very important areas.

RW: Under the terms of your current action, you have pulled out only 2,000 people between

you and these must obviously be key people in essential areas. With your eye to your responsibility, how much care are you taking to ensure that the effects of the strike do not have any long-term impact on what might be called "innocent" areas?

KT: We have made it absolutely plain that we are not going to affect the sick, the needy, the unemployed or the old. They are not going to be involved apart from the one-day strike. This is because the Civil Service is res-

ponsible for the proper running of the welfare state. The second thing is that after making sure that these areas are not disrupted, we are going to hit what is technically called "the machinery of government", but which I suppose can be better referred to as revenue collection. The effect, one would hope, and this is our intention, is that the ordinary man in the street will not be troubled significantly.

But the real pity is that while the one-day strike is not bringing the country to a standstill, but to show our power, the importance of industrial action is its threat, not its implementation. I have desperately striven to use the threat of it to bring about a negotiating situation, any my regret is that I haven't been able to achieve that.

RW: What sort of co-operation have you had from other Civil Service and associated unions? Have they been optimistic or pessimistic of your chances of success?

KT: I don't think one can express it that way. Each union has to decide its own policy in relation to the will of its members. I never criticise other unions for this reason. As I said in one recent circular, my members span those who say, for example, that we should call a strike and stay out indefinitely, and others who somehow believe that sweet reason will always prevail. Now, I think the Civil Service trade union movement reflects those extremes. What we are doing, however, is to look at the bulk of our members, who, after all, have been belated, as the TUC concordat with government says this is the correct way to consult members. By 2 to 1 my members have said "We've had enough" and that is the ordinary lady, not the militant.

RW: At a recent meeting with Lord Peart, Lord Privy Seal, you raised the point that the government brought independent pay comparison, in the form of the Pay Research Unit, back into action but as yet have refused to implement the results of the latest comparison survey. What was Lord Peart's answer to this criticism?

KT: All he said was that they (the government) would be prepared to implement it but it would have to be staged and we should negotiate about staging. That really doesn't tell us anything. It seems like an advance but it really isn't. It is what we were told before, that we can have pay research back but we'll talk about its implementation. They said that 12 months ago and we have not got any further.

RW: But wasn't the agreement made on the basis that by bringing back the PRU, its research would actually be used in negotiations?

KT: It's as simple as that. Indeed, a pay board was set up to supervise the collection of the information, and to ensure that nobody was on the fiddle. That pay board was set up and is now examining all the evidence produced so that it can give a seal of approval, a public declaration, at the end which says that there

was no fiddle here; these facts were collected fairly.

RW: Details of your claims have been issued on the basis of the PRU results which you have analysed. How closely do the increases you are fighting for relate to the PRU figures? Are they exactly the same or some percentage amount?

KT: The effects of incomes policy over a whole range of people have been variable. I believe that the low paid suffered and I also believe that senior management suffered. In the middle range, somewhere or other, there is probably less effect seen. Because our system is sophisticated and complicated it is not easy for me to talk about a 14% increase or a 15% increase. What we do is to look at each grade in the Civil Service and

RW: So what you really are describing is a disease within the Civil Service, the symptoms of which are quite far advanced?

KT: Yes, that's right. What we are saying is that unless somebody actually applies some medicine to the situation in the Civil Service the patient will be dead. We will have catastrophic problems because whether people like it or not a large part of economic, social, and welfare life in the country is involved with government, and much of that day to day routine drudgery work has to be done by thousands and thousands of civil servants, whom the public basically dislike. Now if you haven't got staff to do that then

to Taiwan or some place but the prospects of doing it by any other means is, I think, very bad.

RW: What effect will all the troubles have on the development of the government as a total entity?

KT: I am sure that we are faced with a great shortage particularly in the highly technical areas such as programming, other data processing levels, and that stands out as very important too, but ever since computers started the Civil Service has been a very intelligent use of computers and is in the use of computers, clerical work. Almost as an institution, we have computers than anyone else in the world.

RW: So what you are fighting for then is better pay, less people because of better pay and better development because of more people?

KT: Yes, what we are saying is that it's an old cry for those who work in the public sector. We don't want to do any more than those in the private sector. We don't want to set ourselves up as an elite. What we are saying is that the private sector has to be broken through by all sorts of methods such as productivity bargains.

you gradually get a creeping situation where one day somebody will wake up and find that the whole of Social Security benefits and employment benefits, the machinery of government, is not working. Then there will be panic.

RW: If the government's internal computing capacity collapses, what will it do? Will it go outside for help?

KT: Well, if it tries to use external orcas to prevent a strike action taking effect, then we are in touch with other unions and we are confident that they would block any work which normally would have been performed by our members.

RW: So there is no back door for the government?

KT: I don't think there is at all. They may be able to form it out

Perkin Elmer adds to its menagerie

AN intelligent VDU workstation that can be programmed in Basic will be introduced later this month by the terminals division of Perkin-Elmer Data Systems. Called the Beaver, it comes with integral floppy disc storage, provides graphics facilities and costs less than £2,000.

The Beaver will be added to a group of Perkin-Elmer terminals with animal names—the Pussy-cat VDU output printer, the Owl VDU editing terminal, and Bantam, a teletype replacement BDU that costs less than £400 in quantities of 100.

Bantam features an LSI chip that was designed by Perkin-Elmer itself with the aim of dramatically reducing the total number of circuits in the terminal. The total is 19, compared with 100 in the earlier VDU model that employed a general purpose microprocessor.

Bantam, Pussy-cat, Owl and Beaver are otherwise known, respectively, as the 550, 650, 1200 and 3500.

Other Beaver features include a movable keyboard, a tiltable display, bi-synchronous communications and a range of terminal emulators. The floppy disc storage takes the form of two microfloppy drives each holding 80K bytes. The Basic is ANSI standard with scientific and commercial extensions such as double precision arithmetic and string manipulation.

NERC and SRC in joint network

COMPUTING services for the Natural Environment Research Council are being enhanced by the setting up of a joint network with the Science Research Council to serve NERC's widely spread institutes, and by the unification of all the council's computing facilities under the direction of Dr Brian Rule, who is present works for Honeywell.

One of NERC's two existing mainframes, a Univac 1106, is being moved from Wallingford to Rutherford Laboratory where it will be run by SRC staff as part of the network which will include SRC IBM equipment as well.

NERC is also spending about £1 million on microcomputers for links to the Institute of Geological Sciences in London and similar establishments in Keyworth and Edinburgh, and a GEC 4070 has been bought for a headquarters information system.

Saved from scrapheap

SCHOOLS in West Oxfordshire are to share a redundant IBM 1800 minicomputer which Southern Gas has been using for analysis work, but is now replacing. The 32K, 16-bit machine is being installed free in a classroom at Bartholomew School, Eynsham.

System X company named

THE company formed by the Post Office, Plessey, GEC, and SRC to export System X in the 1980s (CW, January 25) has been named United Telecommunications Ltd. No name was announced at the time of formation because the sponsors were hoping to use the name



Making the going easier

WITH today's high-speed passenger transport, British Rail has had to devise new ways to investigate the forces placed on train wheels operating at speeds of up to 130 mph.

Previously, information relating to this was collected offline by attaching measuring devices to the wheels and undercarriage that collected raw, unprocessed data. This was later fed into a mainframe for analysis. But now BR is using a pair of Miproc-16A8 microcomputers from Plessey Microsystems to do the job in real time.

The vehicle wheels as transducers, is mounted on each of a pair of axially opposed wheels to sample vertical, longitudinal, and lateral wheel/rail forces.

The Miproc-16A8 systems log and process all this information while also providing a real time display of activity via a chart recorder or other equipment.

Commissioned by BR's research and development division at Derby, system hardware consists mainly of standard Miproc modules, but some special hardware was developed for the application.

CII-HB revamps bottom end of its Level 61 line

A MAJOR revamp of the venerable bottom end Level 61 line has been announced by CII-Honeywell Bull. At the same time the French company has reorganised its computer business into two autonomous divisions, one handling "systems and networks" and embracing Level 64, Level 66 and ex CII and Unidata computers, and the other for mass market products, taking in Level 61 and Level 62 for end-users, and the Level 6 minicomputer for the OEM market.

Called Level 61/DPS, the new system features an innovative dual-processor architecture, with a common resources processor, CRP, doing the computation, while a distributed resource processor, DRP, handles the peripherals and up to 16 workstations.

Each processor has its own main memory and a ROM which constantly monitors the performance of the other. The CRP comes with 64 or 96K bytes of 16K bit main memory, and two pieces of microcode. One carries the 114 instruction set and test routines for the DRP, and the other contains resident parts of the operating system, test routines and integral disc controller.

The DRP has 24 or 56K bytes of main memory, and two more pieces of microcode. The first carries test routines for the CRP and the processor's 110 machine instructions, and the second, 8K bytes of supervisor memory.

It also includes diskette controller, synchronous line controller, and the asynchronous line adaptor for the 18 terminals.

The link between the processors runs at 80K bps, which can handle messages from all 16 workstations simultaneously.

The disc capacity ranges from 11 to 230 Megabytes, and the 61/DPS takes one or two printers, with speeds up to 160 cps and 800 lpm.

The operating system is a subset of GCOS-61, called GCOS 61/DPS, and supports three programming languages: Cobol and Fortran compilers and a Basic interpreter. A software suite designed to enable non-specialist users to adapt a set of basic packages to their

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The increasing availability of 16-bit microprocessors poses problems for the System Designer about the suitability of longer word length processors and differences between manufacturers products.

This seminar examines the range of processors, considering selecting an M.P.U. and examines aspects of applications.

The seminar is one of a series concerned with microprocessors and applications. Each seminar is relevant to designers involved in using microprocessors and will also be of interest to staff, university and college lecturers.

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IBM replies on French investment

YOUR International Section (CWI, February 15) carries a report on IBM's European investment in manufacturing, which warrants a reply.

First, the headline of the report, "IBM hits back by cutting French investments," leaves the casual reader with the impression that such cuts are a fact. That is simply not the case. IBM France's manufacturing investment has continued to

grow. Evidence of that is the 167,000 sq ft extension currently under construction at the company's Montpellier plant.

Second, you base much of your speculation about possible reductions in IBM's manufacturing growth in France and Italy on the fact that the IBM 4300 series is to be manufactured in Mainz, Germany, rather than in either of the other two countries.

What you ignore is that IBM Germany's laboratory in Böblingen played a significant role in the development of the IBM 4300 series, and the Sindelfingen component plant is heavily engaged in the manufacture of much of the associated technology.

These factors, among others, played a major part in our decision to manufacture the 4300 series at Mainz, a plant that has extensive experience of intermediate systems products.

You also say that the decision to build the IBM 4300 series in Germany is a "shot across the bows of the Italian government." May I point out that not only has IBM's manufacturing investment in Italy grown steadily over the years, but only two months ago IBM Italy announced its intention to build a new plant south of Rome.

buffer is a window to the database.

On a 16-bit machine the size of this buffer, which is direct addressable, is limited (about 64 Kbytes), but we are implementing a disc cache technique which will increase it to about 800 Kbytes if required.

It is no new technique, and is used by other machines than Nord. Any claim to originality on behalf of IBM is as valid as the claim that IBM invented virtual memory.

The comments about screens and relational databases in Marketview should be taken with a pinch of salt. You can't get much on an 80-character line, independently of whether it is stored as tuples or records. Repeating groups are a normal "user view" of things and they can be and often are represented in the Codasyl and relational approaches without storing them as such in the physical record structure.

Query by example is an excellent screen-oriented interface to a database, but unless you have screens which can take much longer formats than 80 x 24, you will have considerable problems presenting all but the narrowest tables.

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JEREMY SALTER
Norsk Data AS
Oslo

Fred Lahond comments: In this fast-moving market specifications are quickly outdated. For instance, the IBM System 38 capacity has also been raised to 2,800 Mbytes since Marketview was published. Data given on the Nord system was based on literature distributed by the company at Sibos in Paris last September. The table was only intended as a guide to the facilities available and in some cases only the range of machines offering DBMS was named and not all the models.

IBM Europe, Paris.

Sibas, Nord-10 disc capacity

IN Fred Lahond's Marketview surveying minis on which database management systems can be run (CWI, January 11), there are a number of details about the Nord 10S and Sibas which need to be corrected. These are concerned with what Sibas can manage, and the disc capacity of a Nord-10S system.

The maximum disc capacity quoted for such a system is much too low. Nord offers disc packs of 288 Mbytes, four per controller, and two controllers per machine is about 2,300 Megabytes.

This is still less than what Sibas today can manage. At present Sibas uses a 25-bit word addressing within a realm, and one database can contain 82 realms. Thus the maximum storage capacity of a single database is 82 x 2²⁵ words, about 4,000 Mbytes.

Sibas-80, now in the test phase, addresses records, and each realm can contain 224 records which will increase the maximum volume/database considerably.

Sibas was implemented as a virtual database machine in 1974, and is now frequently implemented as a real back end machine in a multiterminal system. An actual application can have a logical database capacity far in excess of the limitations imposed by Sibas or Nord-10.

However, it is possible to upgrade to a mainframe since Sibas runs (admittedly just as a batch system, single user) on IBM 370, Univac 1100, Digital Equipment DECsystem 10 and CDC machines.

Finally, a comment or two about virtual store and relational databases. Sibas has used virtual store technique since its implementation in 1970. Any Sibas implementation has a core buffer whose size is installation dependent. The database is paged into this core buffer via software paging system, and the

CONFERENCES

PEOPLE and Systems — The Next Ten Years, is the theme of a conference on March 29-30 in Bournemouth. It is organised by the management services division of the Institute of Administrative Management. Booking details from Pamela Martin, Courses Department, Institute of Administrative Management, 28 High Street, Bournemouth, Kent BN3 1BA.

AN education co-ordinators' workshop will be held from March 19-23, at the Monkey Island Hotel, Maldenhead, Berkshire. It is organised by BIS-Deltak and intended for those whose work involves in-house training and career development programmes for data processing staff. Further information from The Registrar, BIS-Deltak Ltd, 17-23 Stamford Street, London SE1 8NG. Tel: 01-201 9766.

MANAGING changing technology is the title of a one-day conference to be held at the Cafe Royal, London, on March 22. It is organised by BIS Applied Systems and will examine various management approaches used to handle current changes in technology. Details from Jackie Collings, Course Registrar, BIS Applied Systems, York House, 100 Westminster Bridge Road, London, Tel: 01-633 0866.

BNC878 will be held in conjunction with the British Numerical Control Society annual conference at UMIST, Manchester, from April 24-27. The theme will be the successful application of NC in the British industry, and the exhibition is organised by BNC8 and UMIST and supported by the Institution of Production Engineers. Conference and exhibition details from W. A. Smith, Manufacturing and Machine Tools division, UMIST, PO Box 88, Manchester, M60 1QD.

PROPOSAL preparation and source selection is the theme of a two-day seminar to be held at the British Hotel, Munich, Germany, on March 15-16, and the Royal Aeronautical Society lecture theatre, London, on March 6-7. The seminar is sponsored by the TMSA/RAS and the AUK, and will feature a panel discussion. Inquiries should be made to the TMSA/RAS Proposal Seminar, c/o State of the Art, Victoria House WC1S 4BJ. Tel: 01-243 5048.

THE Scottish Business Show will be held from March 19-23 at the Kelvin Hall, Glasgow. It is organised by BETA and Scottish Industrial and Trade Exhibitions. Details may be obtained from: Roy Durran, BETA, 100 Kingsway, London, WC2B 6PL, or William Taylor, BTSE, 24 Hartington Place, Edinburgh EH10 4LE.

LETTERS

To: The Editor, Computer Weekly,
Dorset House, Stamford Street, London SE1 9LU

Training business systems analysts

ARISING from Owan Hanson's article, Training of Business Systems Analysts (CWI, December 14, 1978), your correspondent Judy Cox raises some constructive points (Letters, January 18).

If a systems analyst aspires to be a business systems analyst it is essential, as she says, that he gains knowledge of business skills to augment and widen his technical training, and here can be the problem. However, I believe we can offer a solution.

Principles of business and industry is the title of a course we have designed precisely to meet the demand of DP staff in this

field, while we also offer O&M for systems analysts, dealing more specifically with the identification and solution of problems in the business environment.

If we can help any of your readers by discussing their needs we shall be happy to do so.

ANDY HOWARD
MSS,
Worthing

The Editor welcomes letters on subjects published in Computer Weekly, or on original topics. All letters must be accompanied by the writer's name and address, not necessarily for publication. All letters are liable to be cut at the discretion of the Editor, unless correspondents state that their letters may not be cut.

Can you help out this school?

THIS is a request to Computer Weekly readers to help Heysham High School give its pupils a taste of computer science and knowledge of some of the potential computer professionals of the future. Many of you must have been to Heysham High School, a preparatory and secondary school which is out of date and not working. By giving us your help, you could help to give our pupils a taste of computer science and knowledge of some of the potential computer professionals of the future.

Closing date for entries is March 10, so get your challenge in as soon as possible by completing the entry form right. Full conditions of entry will be found on page 4 of Computer Weekly, February 15.

The dates of most of the heats have now been fixed and are as follows: Midlands, Alexander Stadium, Birmingham, April 8; South-West, Whitechurch Sports Centre, Bristol, April 22; Thames South, The Sports Centre, Crawley, Sussex, April 20; North-East, Westcliffe Mount Sports Centre, Cleckheaton,

Computastars: don't miss your chance to enter



ALL of last year's Computastars winners are planning to defend their titles and there will be plenty of hard-fought contests for places in the Crystal Palace finals on Saturday, September 29. There will again be a strong overseas contingent with the SAS teams from Copenhagen aiming to take all three major trophies.

The closing date for entries is March 10, so get your challenge in as soon as possible by completing the entry form right. Full conditions of entry will be found on page 4 of Computer Weekly, February 15.

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ENTRY FORM

We have read and accept the conditions of entry for the Computastars 79 competition and would like to enter

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women's teams

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Number of staff in unit

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Name of contact for team (s)

Telephone number

Extension

Signature of manager in charge of unit

Position held

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women's teams

The team would like to compete in the following region: NORTH EAST NORTH WEST MIDLANDS SOUTH WEST EAST ANGLIA THAMES NORTH WEST THAMES SOUTH SCOTLAND

Please circle appropriate centre.

In all matters relating to the rules and the competition, the decision of the organisers is final.

Please send this entry form to Computastars, 117b High Street, Croydon, Surrey. Tel: 01-488 0890.

the heats to win a place in the final except last year's winning men's and women's teams who have been given byes into the final.

Computastars is jointly sponsored by Computer Weekly and Wright Air Conditioning, and organised by Computastars of 117b High Street, Croydon, Surrey.

● Cheques for entry fees should be made payable to Computastars.

NEL researches into industrial robots

FOLLOWING the National Enterprise Board's move in taking a 49 per cent stake in George F. Brown, a manufacturer of robot welding and metalforming equipment (CWI, February 15), the National Engineering Laboratory in Glasgow has begun an 18-month research programme into the development of industrial robots.

Financed specifically by the Department of Industry's Mechanical Engineering and Machine Tools Requirement

Board, the programme forms part of a research project being carried out by the Committee for Automated Small Batch Production. Main activities will include the evaluation of interface and performance standards and the enhancement of robots by equipping them with sensors.

While the use of micro- and multi-processor systems will be examined, the NEL says that it will not be assessing the cost of computer processing and communications functions.

Brussels conference on international data flow

THE impact of new technology and legislation on international data flows will be the subject of a conference in Brussels from April 24 to 26, organised by European Study Conference of Upphagen. Several well-known figures from the international data flow scene will be speaking, including Gerhard Stadler from the OECD, F.A. Bernasconi of the International Bureau for Information, John Egar, formerly director of the Office of Telecommunications Policy, and consultant Adrian Norman.

Electronic funds transfer will be one of the most significant topics dealt with. Paul Henderson of the New York Federal Reserve Bank will suggest that international EFT needs supervision and control, touching such issues as the implication of mar-

kets open 24 hours a day, offshore banking, the global money supply, and whether we need a World Central Bank. Samuel Oddi from the World Intellectual Property Organisation will argue that "information is a commodity in international trade," and Ricardo Sauer from the Brazilian government will discuss the rights of States to control information crossing their borders.

The first day will be devoted to a series of "roundtable" discussions, one being "Law for Technologists" and the other "Technology for Lawyers." The second day will consist of the formal speeches, and the third, workshops. Fee for all three days is £325, and for the second and third only, £250.

Civil servants show teeth

● From front page

repayments will have to wait until the strike is over.

Balance of trade statistics, usually prepared at Southend, will not be compiled either. Confidential communications handled at the Government Communications Headquarters in Cheltenham and coding/decoding of communications traffic to and from overseas embassies at the Foreign Office have ceased too. The only union concession is the 'hot-line' to Washington which is being kept operational.

And while both unions have highlighted that they are not out to get the man in the street, it appears that industry and farmers will have to bear most of

the brunt as far as government payments and subsidies are concerned.

About £200 million a week in these areas are being affected by action at Ministry of Defence control in Liverpool and Cheltenham at the Department of Environment's Centre at Hastings; the Ministry of Agriculture's centre at Gullford; and at the Scottish Office in Edinburgh.

Telex communications within some Department of Trade buildings have either been stopped or severely disrupted, and those hoping for a Premium Bond prize will have to wait until the strike is called off as "Ernie", the impartial computer at the Department of National Savings Centre in Lytham, is inoperative.

System that was too small

AFTER complaining to Computer Weekly about the performance of its Philips Data Systems Informer VRC, a user in Worcesterhire, SMF Motor Factors of Stourbridge, has been offered a disc-based system by Philips in part exchange.

An SMF spokesman said, "We have never used a computer before and we were rather green when we installed the Informer last August. Until now Philips has insisted that it could handle our stock control system as well

as our accounting work even though the system needs more than 8,000 ledger cards, far more than the Informer could handle in normal working hours."

A Philips spokesman said, "We originally thought that the SMF application would require only 3,500 cards. Our managing director has now written to SMF agreeing to exchange the Informer for one of our bigger disc-based machines." This is to be done on a part-exchange basis.

Prestel US agreement

THE long-awaited formal licensing agreement between the Post Office and Inspec, covering the marketing of the corporation's Prestel Viewdata system in the US, has been signed. This has removed a major barrier to partnerships that Inspec hopes will offer viewdata services in the US by the end of the year.

Inspec managing director John Pearce said that it might be two

or three months before the first partner is announced (CWI, January 11). "We are in final negotiations with companies some in the business market and some in the domestic, but I won't be drawn on timescales."

Inspec's 12-man sales team is also selling direct to closed user groups and corporations, and has received several letters of intent from potential users.

Customs' faulty figures

● From front page

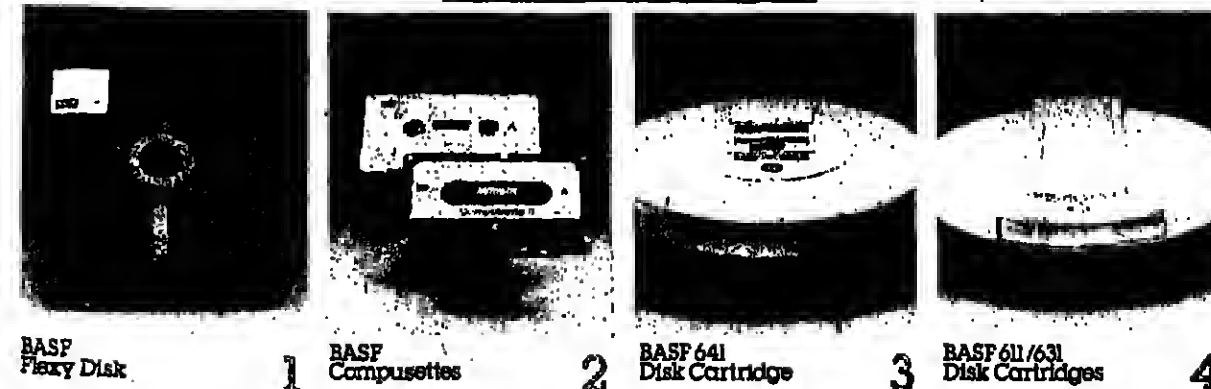
have been entered under a different heading."

But Customs is not yet prepared to reveal the nature of the "items" that have been "incorrectly included under the analog

and hybrid heading. Customs said, "At the conclusion of the inquiry a more accurate picture will emerge and details will be made known. A new figure will then have to be published."



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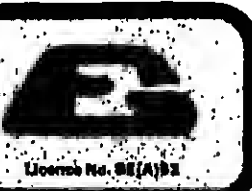
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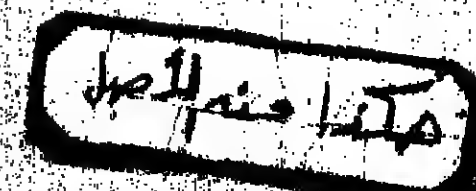
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Tooting, London SW17.

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All interviews will be conducted in London.

b&c recruitment 276

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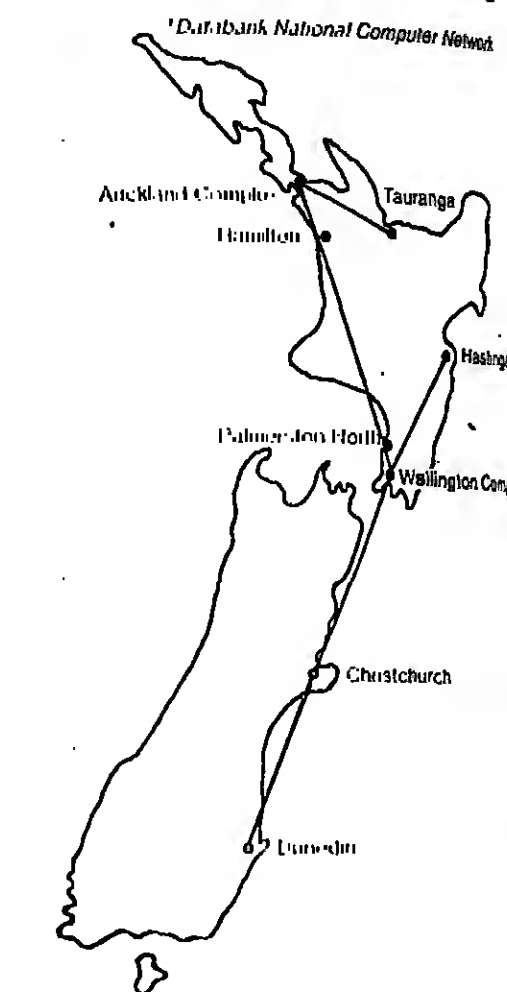
2-3 years experience in IBM assembler or other languages. If other languages - we will retrain.

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With any of the following skills:- experience of using IBM equipment for on-line applications * a thorough knowledge of assembler and internals of IBM OS/VS or MVS * experience in programming mini-computers as front ends.

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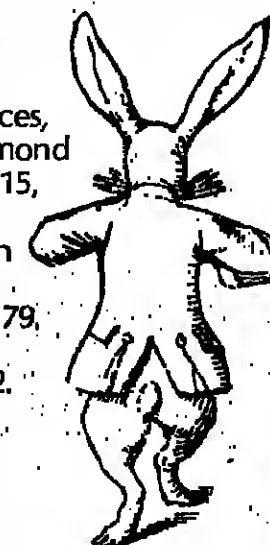
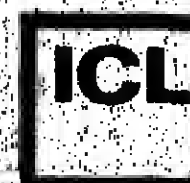
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E1/0103

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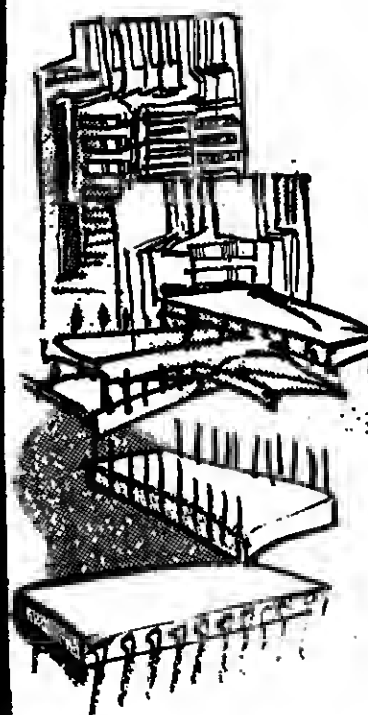
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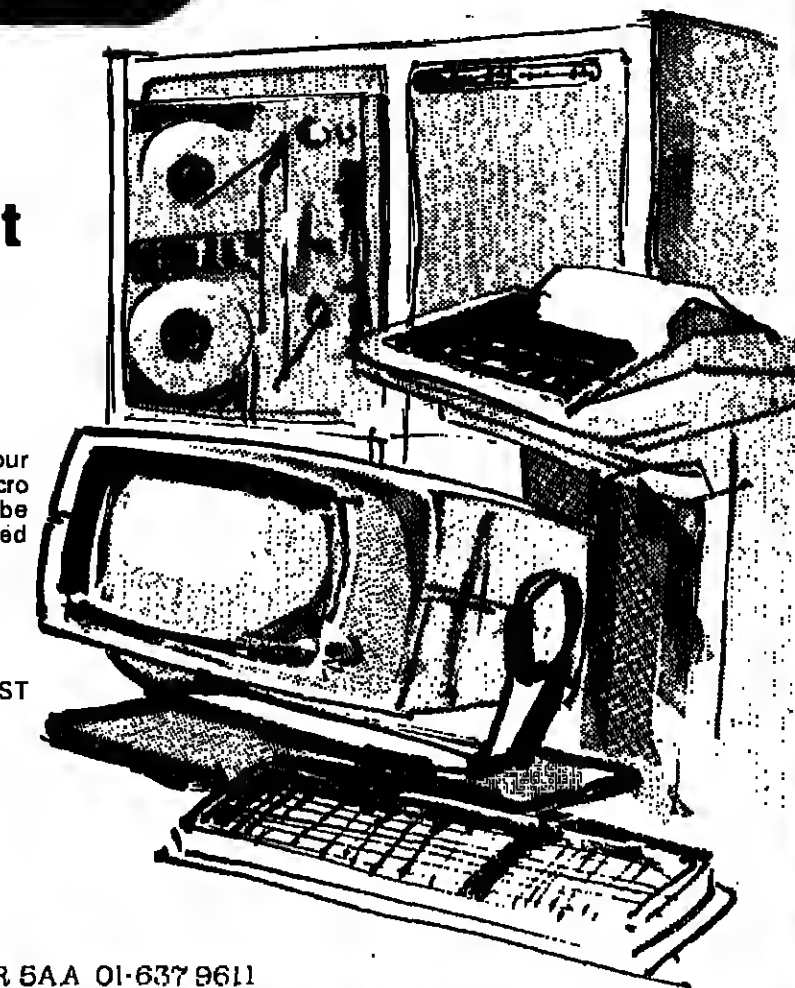
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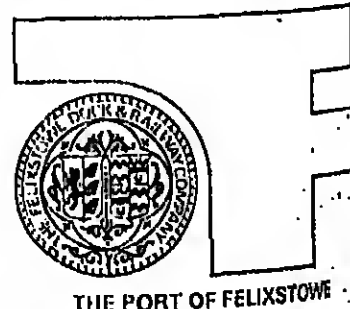
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OPERATORS are required, preferably with experience of a multiprogramming environment. Consideration may be given to suitably qualified applicants on junior level.

The above positions will be eligible for the company phase 4 review in July together with removal expenses where appropriate.

Applicants should apply to Personnel Department, Felixstowe Dock and Railway Company, Felixstowe, Suffolk, or phone D.P. Manager on Felixstowe 440 extension 130 or Eyke 363 (evenings).

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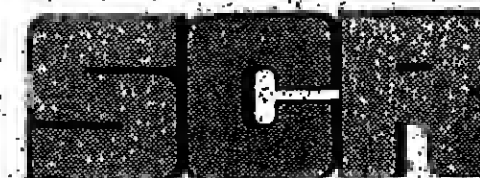
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Applications are invited to fill the following posts which all involve spending some time working at sea.

COMPUTER ENGINEERS. Post Ref. RVS/SC/78/6-8
Computer Engineers with a good electronics background are required for interfacing development and maintenance work on oceanographic data acquisition and processing systems. Currently in use are PDP11, IBM 1800 and IBM 1130 computers.

ELECTRONICS/INSTRUMENTATION ENGINEER. Post Ref. RVS/SC/78/12
An Electronics/Instrumentation Engineer is required to join the Shipborne Instrumentation Group. The work will involve calibration and maintenance of a range of oceanographic sensors and instrument systems for use on research ships. Some design work on equipment modification may be involved.

SYSTEM ANALYST/PROGRAMMER. Post Ref. RVS/SC/78/8
A Systems Analyst/Programmer is required for programming support of the shipborne computer systems. Experience in real-time programming using Fortran, RTL/2 or Assembler languages would be desirable but not essential.

QUALIFICATIONS/EXPERIENCE
Normally below age 27 with a degree, HND, HNC or an equivalent qualification in an appropriate subject. A pass in BCS Part II and relevant experience is acceptable for the computer posts.

SALARY SCALES
Appointments will be in the grade of Scientific Officer with salary scale of £2,838-£4,415 p.a. The starting salary may be above the minimum depending on qualifications and experience. In addition under the present regulations a Scientific Officer could expect to increase his/her earnings by at least £1,000 p.a. with normal sea-going duty. There is a non-contributory pension scheme.

Staff at the NERC are not Civil Servants but they pay and conditions of service are similar to those of the Civil Service. Further details and applications forms may be obtained from:

Jan Hill, Research Vessel Services, No. 1 Dock, Barry, South Glamorgan CF6 6UZ. Telephone Barry (0448) 737451. Please quote post reference: Closing date for receipt of applications: 15 March, 1979.

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This department is currently expanding to meet a long-term plan to investigate, develop and implement new manual and computer systems for all users in the organisation.

Business Systems Analysts
responsible for providing the necessary business input to all aspects of systems concept, development and implementation.

Systems Designers
responsible for the design of computer systems utilising structured techniques. Applicants for the above positions should ideally be educated to degree level and have at least two years practical experience of systems analysis and/or design in a computer environment.

Programmers
we are looking for programmers at varying levels, but candidates should have at least one years working experience of COBOL.

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The Research and Development Division of the British Railways Board at Derby wishes to strengthen its engineering computing team. The team is involved with a wide variety of technical computing work both as projects in their own right and as support for the various engineering departments of the Board. The areas covered by the team include:

Computer aided design and analysis using interactive graphics.
Support and extension of the finite element package.
Wide range of programmes and systems for experimental data capture and analysis.
Development and application of structural design and analysis techniques.
Mechanical/Electrical/Civil Engineering support.

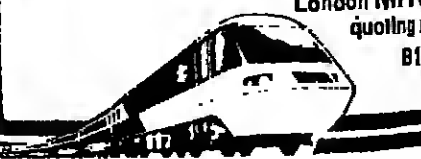
The team has access to an IBM380/168 main frame computer, is responsible for the software of many mini computers and is beginning to be involved with micro processors.

Some experience of engineering or technical computation is essential. The minimum qualification is a degree or equivalent in Engineering, Mathematics or Science.

The commencing salaries for the junior posts will range from £2,803 to £4,583 plus additional payments for certain educational qualifications and for the more senior posts £4,740 to £5,184. There is a contributory Pension Scheme and the transfer of existing pension rights can, in most cases, be accepted. There are also free and reduced rate rail travel facilities.

Applications stating age, education, qualifications, experience and present salary should be sent to:

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British Railways Board,
222 Marylebone Road,
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quoting ref: B113



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Commencing salary around £4500

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COMPUTER MANAGER Required to run large Mini using C.P.U.s and J.O.U.s. At least 2 years' programming in Basic+ or similar language. Area: Birmingham. Salary: c£5,000. Ref: M46.
SYSTEMS EXECUTIVE At least 5 years in O.P. to advise clients on Systems development and participate in selling Operations. Working knowledge at numerous applications required. Area: West Midlands. Salary: c£5,000 plus expenses. Ref: P24.
SYSTEMS MANAGER with at least 8 years in O.P. including Real time, Database and Time sharing applications in both Mini and Mainframe environment. Area: Nottinghamshire. Salary to £7,000. Ref: SA216.
SYSTEMS ANALYST At least 4 years' commercial systems using IBM or ICL hardware. Area: Nottinghamshire. Salary: c£8,000. Ref: SA188.
PROJECT LEADER At least 4 years in Commercial systems. Area: Gloucestershire. Salary to £8,500. Ref: P18.
PROJECT LEADER At least 4 years in Systems Analysis and Design together with a formal Cobol programming background using ICL Hardware. On-line and Batch applications essential. Area: Birmingham. Salary: to £8,500. Ref: SA187.
PROJECT LEADER At least 4 years' Commercial Systems, specialising in financial applications especially Order Processing or General Ledger. Area: West Midlands. Salary: package around £5,500 plus liberal car and mileage allowance. Ref: SA218.
SYSTEMS ADVISOR required by International Mini-computer manufacturer for Pre and Post sales activities. They would be required to specialise in implementing software packages. A formal programming background is required plus a minimum of 2 years' Systems Analysis. Although the position is based in Birmingham covering the Midlands area occasional travelling throughout the U.K. would be required. Salary: to £8,500 plus Bonus and Car allowance. Ref: SA201.

SENIOR SYSTEMS ADVISOR for main frame manufacture. At least 4 years' commercial systems including knowledge of Cobol or RPG II. Area: Leicester or Bristol. Salary: c £8,000 plus car allowance and generous expenses. Ref: SA123.
SYSTEMS SUPERVISOR At least 4 years in Analysis and Programming in RPG II. Knowledge of stock control or order processing applications an advantage. Area: Redditch. Salary to £8,000. Ref: SA190.
SYSTEMS CONSULTANT Experienced with IBM small mainframe and Minis. Language RPG II. Area: Gloucestershire. Salary: to £6,500 and Company Car. Ref: SA180.
SYSTEMS ANALYST At least 3 years' experience using IBM System 3 hardware. Area: Nottinghamshire. Salary: to £8,000. Ref: SA208.
SYSTEMS ANALYST At least 2 years' Systems design with programming background. Knowledge of Database and Real time an advantage. Area: Nottinghamshire. Salary: to £8,000. Ref: SA125.
SENIOR ANALYST At least 4 years in O.P. Systems. Area: Loughborough. Salary to £8,000. Ref: SA193.
SENIOR SYSTEMS ANALYST At least 4 years' Commercial applications. Area: Northampton. Salary £8,000+ Ref: M36.

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ZAMBIA ANALYST/PROGRAMMER At least 3 years' experience using IBM Systems 3 hardware. Minimum period of contract 2 years. Salary negotiable plus expenses and completion gratuity. Ref: M45.
TECHNICAL SUPPORT ANALYST/PROGRAMMER At least 2 years' commercial applications including Production Control. Mini manufacturer. Area: Birmingham. Salary: c £5,000 plus company car and expenses. Ref: SA187.
PROGRAMMER/ANALYST Required at least 2 years working with IBM small mainframe or minis. Real-time experience essential for Pre and Post Sales Support work. Area: Stalls. Salary: to £6,000 plus generous car allowance. Ref: P38.
SENIOR ANALYST/PROGRAMMER With RPG II experience. Senior Programmer without Analysis experience considered. Area: Rural Wiltshire. Salary: to £8,000. Ref: SA180.
ANALYST/PROGRAMMER 1 year plus Cobol or willing to retrain experienced programmer in Cobol. Area: Cannock. Salary: c £8,000. Ref: P390.
DEVELOPMENT ANALYST/PROGRAMMER At least 2 years' Cobol, small installation. Area: North Birmingham. Salary: c £5,500. Ref: SA220.
ANALYST/PROGRAMMER 2 years' Cobol. Any hardware. Area: Wolverhampton. Salary: c £5,000. Ref: P411.

PROGRAMMERS/ANALYSTS

CHIEF PROGRAMMER At least 4 years in programming with good working knowledge of NEAT 3 or MUMPS. Area: Stalls. Salary: to £7,000. Ref: T272.
FORTRAN PROGRAMMER With real time and interactive mini experience to work on Marketing and Production Control Systems. Permanent or Contract position. Area: Swindon. Salary: Negotiable. Ref: P130.
PROGRAMMER Must have experience in S.N.A. using IBM Terminals. Travelling throughout U.K. involved. Salary: c £5,500 plus expenses. Ref: P409.
SUPPORT PROGRAMMER for Pre and Post support. At least 2 years using Cobol. RPG II Assembler Mainframe manufacturer. Area: Birmingham. Salary: to £6,000. Ref: P41.
SYSTEMS PROGRAMMER For Software development around 2 years' programming experience with knowledge of Cics. Area: Lincolnshire. Salary: c £5,000. Ref: SA198A.
PROGRAMMER At least 18 months' Programming in Cobol PL/I or Assembler. Area: Burton-on-Trent. Salary: to £6,000. Ref: P367.
SOFTWARE PROGRAMMER At least 2 years' Assembler experience with knowledge of Cobol. Salary: to £6,000. Ref: P410.

SYSTEMS SOFTWARE PROGRAMMER. 2 years' plus experience using Univac hardware under Executive B. Area: Wiltshire. Salary to £8,000. Ref: P412.

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OPERATIONS PLANNING ASSISTANT Must have several years' experience with IBM Hardware using ICL OS together with a knowledge of Software or packages. Area: Stalls. Salary: c £8,000. Ref: SA178.
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SENIOR COMPUTER OPERATOR At least 18 months using IBM OS 005. Area: Birmingham. Salary package: £8,000 plus. Ref: 0148.
SENIOR COMPUTER OPERATOR at least 18 months operating IBM 370. Area: Swindon. Salary: to £4,000. Ref: 0165.
COMPUTER OPERATOR/OATA CONTROLLER at least 2 years' Operating/Data Control experience. Any hardware. Area: Gloucestershire. Salary: c £4,000. Ref: 0159.
COMPUTER OPERATOR at least 2 years' Operating ICL 1800 or 2800. Area: Swindon. Salary: c £4,000. Ref: 0168.
CHIEF OPERATOR at least 4 years' operations experience using ICL 1900 range under Executive and Omege 11. Ability to supervise staff at various levels. Area: Gloucestershire. Salary: negotiable. Ref: 0180.
NETWORK CONTROLLER, experienced in on line network control. Area: Gloucestershire. Salary: Negotiable. Ref: 0181.

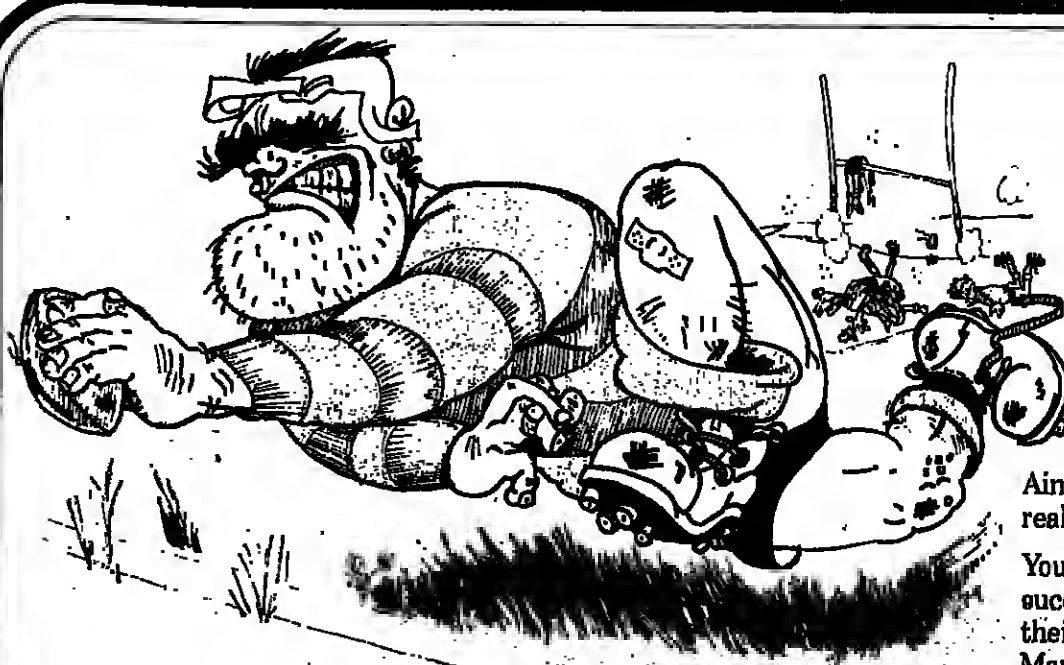
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NORTHERN APPOINTMENTS



Plenty of work—and much else—on offer in the North

IN taking a look at the opportunities in data processing in the North it is worthwhile considering the general market situation as a prelude to looking more specifically at the area.

In general terms the market-place appears very good from the point of view of an applicant seeking a new position, be it in operations, programming, systems analysis or sales.

With the exception of senior management positions, where the competition is always intense, there would certainly seem to be more jobs on offer than candidates to fill the vacancies.

When considering the opportunities in any area and acknowledging the shortage of experienced personnel, it is worth mentioning the major features for which candidates are looking in a job.

I would suggest, not necessarily in order of priority, that the major features to be considered are:

1. — The general background, which includes job content, career path, equipment, technical content and the level of commitment of top management to data processing.

2. — The financial considerations including salary levels and the value of those rewards to the recipient.

If these criteria are satisfactorily met then, even in today's market-place, candidates of good quality can

always be found, although this can require considerable effort on behalf of consultants or client companies alike.

How then do the job opportunities in the North measure up to these key criteria?

To deal firstly with the general background, the North does not lag behind any other sector of the UK in these respects. Throughout the region there are numerous examples of very progressive companies which are at the forefront in the use and continuing development of the latest technology.

There is a comprehensive range of installations covering all the main hardware — mainframe, mini and including quite extensive use of distributed processing techniques. Thus in technical terms there is no difficulty in satisfying any particular candidates so far as the hardware with which they wish to work is concerned.

Acknowledging that candidates can have a preference for a particular manufacturer's equipment, the major consideration in

any company's data processing department must be the aspect of service to the organisation, and the types of organisation in the region should be mentioned.

There is a wide spread of commercial, financial and industrial organisations, and therefore considerable scope for professional staff

to advance their careers whatever their preference in terms of company activity and hence the type of applications on which they wish to work.

There is a much activity in the manufacturing industries which gives plenty of opportunity for those who wish to specialise or gain experience in the areas of production control and

largest and most well developed in the UK. Finance, banking, insurance, building societies, public utilities and government bodies are also well to the fore.

For people interested in the sales and marketing side of the industry there is ample opportunity both for sales executives and for software support staff.

reminders of the type of opportunities in the region it is important to consider carefully the financial aspects.

Much has been said and written about the differentials in salary levels in different parts of the country allied to the cost of living in various areas. In general terms the cost of living is definitely lower in the North and house prices, particularly compared with the Greater London commuter area, are much lower and offer better value for money.

Hand in hand with this goes the distance commuted and the significant cost of so doing. Generally in the North people seem to live much nearer their place of work, probably because they do not need to go a long way away to be able to buy a house in pleasant suburban or rural surroundings.

Underlining the differential in respect of housing costs is the fact that my own organisation is frequently contacted by candidates who wish to move North, often because at the early stages of their

career and married life it is the only opportunity they have of being able to afford to buy a house.

It is dangerous to make categorical statements about salaries because it seems that whatever the salary one quotes it can always be proven wrong in a subsequent advertisement. However, as a guide the following are I think reasonable market indicators: Programmers (1 year Cobol), about £4,300; programmers (2/3 years), about £5,000/£5,300; senior programmers (5 years), about £6,000; systems analysts (3 years DP), about £5,500/£6,500; senior analysts (5/6 years DP), about £6,300/£7,000.

Obviously, using a generalisation such as "North of England" there can be considerable variation in these figures, but they represent the level that needs to be offered and which candidates can reasonably expect to receive.

Various additional factors also come into play, including productivity bonuses.

While it is possible to discuss salary levels in general systems development terms

it is not so easy in the case of sales jobs which attract total packages in the £10,000 to £20,000 range depending on seniority and overall responsibility.

Finally on the question of money, I am very much of the view that if housing costs, general living costs and commuting costs are taken fully into account then the differential in salary levels between the North and South does not fully reflect those factors, in that the salaries in the North are not that much lower.

This last comment means in effect that one has more value for one's work and that in effect there is more money left over for personal and leisure spending. And here the Northern region has plenty of areas of natural beauty — the Lake District, Peak District and the Yorkshire Dales all with easy travelling distances of many major contributors.

The quality of life is good and the environment is clean.

Finally, it is my view that the North is able to offer a wide choice of jobs involving most types of hardware and covering a range of systems applications suit most people's needs.

It is an area which offers over and above work, and speaking as an immigrant from the South no longer believe the world and socially, culturally and economically possessing the many advantages of the north of England.

Is it Watford?

NORTHERN APPOINTMENTS

A number of clients located throughout the North of England who are major computer users have a requirement for staff at various levels of experience within most of the following job categories.

There is a wide range of vacancies and the hardware covers most of the major manufacturers.

Whilst the majority of the vacancies we are seeking to fill come within the systems development function there are also vacancies for senior operations personnel.

Salaries will be offered which reflect the qualifications and experience of the successful candidates. In addition in a number of cases attractive bonus schemes are in operation and if relocation is necessary expenses will be reimbursed.

We will be bringing the opportunities to you by holding informal interviews at major centres throughout the North of England all next week. Please call at your most convenient location and ask at the hotel reception for Ivor Norton between 4.30 pm and 9.00 pm on the dates shown:

LIVERPOOL

Monday 5th March 1979
Holiday Inn
Paradise Street
051-709-0188

MANCHESTER

Tuesday 6th March 1979
Portland Hotel
Portland Street
061-228-3400

NEWCASTLE

Wednesday 7th March 1979
Swallow Hotel
New Gate Street
0632-25025

LEEDS

Thursday 8th March 1979
Metropole Hotel
King Street
0532-450841

UNABLE TO MAKE IT

If these dates and times are inconvenient or if you prefer to arrange a formal appointment please telephone Harrogate 66628 (reverse charges) or write stating job interest and preferred area to Ivor Norton Management Services Ltd., FREEPOST, Harrogate, HG1 5BR. We will then arrange to meet you at a mutually convenient time and location.

FOR CANDIDATES NOT RESIDENT IN THE NORTH

In the next few weeks we shall be visiting various locations throughout the UK and if you are considering moving to the North of England or would just like to find out more information about job opportunities in the North please contact us by telephone or FREEPOST. We will then arrange to meet you for an informal discussion either about these vacancies or to advise you generally about the career opportunities and general amenities in the North. Our help and advice is free.

Ivor Norton Management Services Ltd

RECRUITMENT CONSULTING DIVISION
62 Shaftesbury Avenue, London W1V 7DE. 01 734 8862 (24 hour answering service) P.O. Box 63 Captham Tower House, Harrogate HG1 1TS. Tel: Harrogate 06628

Ivor Norton Management Services Ltd

RECRUITMENT CONSULTING DIVISION
52 Shaftesbury Avenue, London W1V 7DE. 01 734 8862 (24 hour answering service) P.O. Box 63 Captham Tower House, Harrogate HG1 1TS. Tel: Harrogate 06628

All cut up about life?

Elastoplast is the answer

Excellent salaries
+ paid overtime

HULL

Our client, T.J. Smith & Nephew Limited, makers of Elastoplast and many other well-known products, have embarked upon a major on-line/real-time systems development programme for their Univac 90/60. Thus they are seeking a number of experienced staff to bolster their existing team.

In addition to some attractive financial benefits, these positions offer the following desirable features:

- * NEW ON-LINE SYSTEMS
- * ON-LINE PROGRAM DEVELOPMENT
- * A HIGH DEGREE OF PERSONAL RESPONSIBILITY
- * FULL TRAINING, AS REQUIRED

Hull offers excellent city, country and coastal amenities, with plentiful and reasonably priced housing. Assistance with relocation is available in appropriate cases.

TO FURTHER YOUR CAREER, TELEPHONE (TRANSFER CHARGES, IF NECESSARY) OR WRITE TO ARNOLD SAMPSON (NO STAMP REQUIRED).

INITIAL INTERVIEWS WILL BE HELD SOON IN HULL, MANCHESTER OR LONDON.

Sampson Staff FREEPOST, Manchester M1 8DL. Tel: 061-832-4184
Evenings and Weekends - Tottington (020488) 2646.



Systems Co-ordinator

Central Lancashire, c. £7,000

A subsidiary of a major British group, our client manufactures and markets capital equipment for use in breweries, dairies and related industries. The company, which will install a computer later in the year, is undertaking a comprehensive review of its operational systems and has created this new position to co-ordinate the design, development and implementation of the new systems. Reporting to the Managing Director,

C.G. Moores, Ref: 24150/CW.

Male or female candidates should telephone in confidence for a Personal History Form to: MANCHESTER: 061-236 8981, Sun Life House, 3 Charlotte Street, M1 4HB.

Hoggett Bowers

Executive Selection Consultants

BIRMINGHAM, CARDIFF, GLASGOW, LEEDS, LONDON, MANCHESTER, NEWCASTLE AND SILEYFIELD.

Quality of Life ON + RURAL LINE + CHARM

Ellesmere, Shropshire.

This is one of those rare opportunities to get out of the rat-race, yet not move into a computing backwater. Our client is R.J. Fullwood & Blend, an international company who are market leaders in the manufacture of milking machines and bulk storage tanks. They run a dual Burroughs installation consisting of 81800 and 8800 processors, with on-line and database applications, and on-line program development.

These machines were installed in 1976, primarily for the introduction of on-line production and inventory control systems. These systems will be linked to the existing on-line order processing system. These developments have created the need for further programming support, to augment the existing small team.

COBOL PROGRAMMERS

Two experienced Cobol programmers are required, to work on a variety of development and software tasks. A minimum of 1 year's Cobol experience is necessary, on any machine, as Full Burroughs training will be given.

Ellesmere, in Shropshire's Lake District, offers a superb environment for family life, with easy access to and from most areas of the North West, Wales and the West Midlands. Housing is plentiful and reasonably priced, and assistance with relocation will be given, where necessary. Salaries are attractive, and will depend on experience.

To improve your quality of life and job satisfaction in one go, telephone (transfer charges if necessary), or write to Arnold Sampson ASAP. Interviews will be held quickly in Ellesmere, Manchester or London.

Sampson Staff FREEPOST, Manchester M1 8DL. Tel: 061-832-4184
Evenings and Weekends - Tottington (020488) 2646.

TEESIDE POLYTECHNIC

Department of Computer Science

Applications are invited for the posts of

PRINCIPAL LECTURER
and
LECTURER II/ SENIOR LECTURER

The vacancies arise from the expansion of this well-established department and internal promotion.

Applicants should have good academic qualifications, a strong interest in teaching computing, and, preferably, some industrial or commercial experience.

For the Principal Lecturer post candidates should have a special interest in a non-numeric branch of Computer Science.

Salary Principal Lecturer £7047-£7818 (work year) - £8944 initial appointment may not be made above £7818.

Lecturer II/Senior Lecturer £4101-£6051 (efficiency band) £7058 (work year) - £7472. Appointment will be made within the range £4101-£6051.

Application forms and further particulars are available from the Staffing Section, Teeside Polytechnic, Borough Road, Middlesbrough, Cleveland, TS1 3BA, and are returnable within 14 days of the appearance of this advertisement.

NORTHERN APPOINTMENTS

THE POLYTECHNIC HUDDERSFIELD
DEPARTMENT OF COMPUTER STUDIES AND MATHEMATICS

RESEARCH FELLOW

(Fixed term two year contract) Ref: ACA/1984
Applicants are invited from graduates with relevant research experience to undertake research on computer information systems.

RESEARCH ASSISTANT

(Fixed term two year contract) Ref: ACA/201
Applications are invited from graduates or persons of equivalent experience to undertake research on computer information systems. The successful candidate will be expected to register for a higher degree with the Council for National Academic Awards. Salary Research Fellow Huddersfield Scale (Point 0 SL Scale) £8,051 Research Assistant Huddersfield Scale (Point 0 SL Scale) £3,192. Further details and application forms, which should be returned by 23 March, 1979, from the Personnel Office, The Polytechnic, Queensgate, Huddersfield HD1 3DH. (Telephone 0484-2240, Ext. 2225).

HALTON BOROUGH COUNCIL

CHIEF FINANCE OFFICER'S DEPARTMENT

POST NO. 84

SENIOR ANALYST/ PROGRAMMER

Salary up to £5588 per annum inclusive

Applications are invited from experienced computer personnel for this post which is required to complete a small development team working on both existing and new systems, including on-line enquiry systems for the council. The position involves taking charge of systems from investigation to implementation and negotiating with users departments.

The council's ICL 2904 with EDS 60S, magnetic tape and direct entry has recently been enhanced by the addition of 7602 communications equipment. The post is based in Wilmslow and a system of flexible working hours is in operation. The council will be willing to pay reasonable removal expenses and make available, where appropriate, accommodation to the successful applicant.

Application forms are obtainable from the Head of Personnel and Management Services (Tel: 061-424 2061 Ext. 148) should be returned not later than 14th March, 1979.

R. TUNTON, Chief Executive

Municipal Building, Kingsway, Wilmslow WA9 7AF

CITY OF NEWCASTLE-UPON-TYNE

SYSTEMS DEVELOPMENT MANAGER

(Salary up to £7,788 p.a. including supplement)

The Systems Development Manager will be responsible for a team of approximately 25 development staff and will act as deputy to the Assistant City Treasurer (Computer). The successful applicant will probably be between 30-40 years of age, professionally qualified and have a proven record in the development of computer systems, preferably having used data base techniques.

An ICL 2980 computer will be installed later this year which will be replaced by an ICL 2972 computer in 1981. An exciting development programme of work is planned with an emphasis on using communications and data base software.

Assistance will be given with removal expenses in appropriate cases. Suitable qualified and experienced candidates are invited to write in to the City Treasurer, City Centre, Newcastle-upon-Tyne NE2 4BB for an application form which should be returned by 12th March, 1979.

ASSISTANT COMPUTER AUDITOR - BRADFORD

£6,300-£8,750 p.a.

The authority is seeking to appoint an Assistant Computer Auditor to undertake computer audits and to provide technical support in the audit of computer systems. The successful applicant will be responsible for the audit of computer systems and will be expected to build a team of auditors. The machine operated in present is an ICL 2970 with remote computer ICL ICL 7600 SIMAC ICL 7107 and processed F.P.

Since the nature of this work will demand a high degree of computer knowledge the successful applicant will be a computer professional with extensive experience in analysis and programming preferably with a financial background.

A current full driving licence is essential. Relocation and training allowances will be paid in appropriate cases. Application forms are available from the Regional Personnel Office, Yorkshire Water Authority, West House, 87 Albion Street, Leeds LS1 5BA (Tel: Leeds 448 2111 ext 708).

to whom this should be returned by 14th March 1979, 12th March 1979.

Yorkshire Water

UNIVERSITY OF LEEDS

SYSTEMS ANALYST/PROGRAMMER

Applications are invited for the post of Systems Analyst/Programmer in the Office of the Registrar, available from 1 April, 1979. Candidates should have a degree and knowledge of Cobol programming and systems analysis experience. A degree and/or other relevant qualifications would be an advantage.

The successful candidate will play a major part in the detailed design, programming and implementation of financial and non-financial projects within the Administrative Computer Unit. This provides a wide range of data processing services to those members of the Administrative staff responsible for student, financial and library record keeping. The present in-house machine is an ICL 1901, but there are plans to enhance this facility and to develop on-line applications.

Salary on the 1A scale for Administrative Staff £354-£558 (under review).

Application forms and further details of the post may be obtained from the Registrar, The University, Leeds LS2 9JT, or by writing to the Registrar, 157A, Clarendon Road, Leeds LS2 9JT, or by writing to the Registrar, 157A, Clarendon Road, Leeds LS2 9JT, or by writing to the Registrar, 157A, Clarendon Road, Leeds LS2 9JT.

NCC MICROPROCESSORS

The National Computing Centre Ltd.
Manchester
Tuesday, March 27, 1979

The increasing availability of 16-bit microprocessors has opened up new questions to the system designer about the possibilities of using word length processors and differences between microprocessors' products. This seminar examines the range of microprocessors, considers criteria for selecting an m.p.u., and discusses aspects of applications.

The seminar is one of a series concerned with microprocessor technology and applications. Each seminar is designed for system designers and engineers involved in using microprocessors and will also be of interest to computing staff in Universities and College lecturers.

Seminar Bookings: John Sell, The National Computing Centre, Oxford Road, Manchester M1 7ED. Tel: 061-275 5555.

NCC The National Computing Centre

NORTHERN APPOINTMENTS

VICTORIA APPOINTMENTS LIMITED



BELOIT WALMSLEY LTD.

Senior System Analyst

Salary £5,900

Junior System Analyst

Salary £5,000

This International Manufacturing Company now wishes to recruit a Systems Analyst to be responsible for the design and implementation of a new Financial Project to be set up on Database.

The successful candidate will have a good business background, preferably with experience of manufacturing and financial applications. He/she will be highly self-motivated and User Orientated. This post represents an excellent opportunity to gain project management experience.

For the Junior Systems Analyst post we are seeking a programmer wishing to progress into Systems Analysis or alternatively a candidate with 6/9 months' systems analysis experience to join the manufacturing team engaged on the development of on-line systems.

The installation operates on IBM 370/138 (currently under review) using DL/I Database and pursues a comprehensive training policy.

The Company offers excellent terms and conditions of employment, together with usual benefits expected from a large company. REF. CW 10279.

For an application form in respect of this and many other vacancies please contact Miss Val Halliwell, Victoria Appointments Limited, 24 Mosley Street, Manchester 2. Tel: 061-236 7319 (24-hour answering service) and 061-236 7417 or home 061-440 8134.

MRL CARS TO LET

from £28 per month including Road Tax, Insurance, Maintenance & Repairs
Only available to those

EXPERIENCED PROGRAMMERS

Joining Our Permanent Staff
Working on a variety of contracts
In and Around

GREATER MANCHESTER

Basic Salary rise to over £7000 p.a.
+ BONUSES + PAID OVERTIME
Minimum Qualifications are
5000 COBOL EXPERIENCE
FULL CURRENT DRIVING LICENCE
For further Details Contact:

John Royle
Master Resources Ltd.
Langley House,
Stannards Road,
Wilmslow
Tel No: Wilmslow 552127
Registered under the Employment Agencies Act 1973 Licence No. NW389

OPERATORS

With experience on IBM or ICL equipment, do you want to Pursue a career in Operations, within a progressive environment using the latest equipment?

Develop your career off-shift in other areas of DP such as customer/technical support?

Yes! Then our clients with locations in Surrey, Middlesex and the City would like to meet you.

Salaries will be in the range £4,500-£8,000 and terms and conditions of employment are excellent.

Apply in confidence to: User-Aid Ltd., Transport Buildings, Millmead, Guildford, Surrey. Telephone Guildford (0483) 38488.

USER-AID

DP Recruitment Consultants

UNIVERSITY OF MANCHESTER

SENIOR LECTURER/LECTURER IN COMPUTER MICROELECTRONICS

Applications are invited for this post in the Department of Computer Science. Candidates preferably should possess a higher degree and have considerable experience in one or more of the following fields: Integrated Circuit Design, Computer Aided Design of electronic circuit systems, Computer Systems Design, High Density packaging, microconnections and cooling technology, Microprocessors design and use. The ability to lecture is essential and the successful candidate will be expected to deliver lectures on research in the field of computer microelectronics. Lecturers salary within the range £3,892-£7,784 p.a. Senior Lecturer within the range £7,593-£9,283 p.a. Superannuation. Post available as soon as may be arranged.

Further particulars and application form (returnable by March 30) from the Registrar, The University, Manchester, M13 9PL.

SHEFFIELD CITY POLYTECHNIC

DEPARTMENT OF COMPUTER STUDIES

RESEARCH ASSISTANT

DISTRIBUTED OPERATING SYSTEM

Salary Grade £2916-£3250

Applications are invited for the post of Research Assistant to join a departmental group working on distributed operating systems. The successful candidate will be expected to undertake research in the field of distributed operating systems on a microprocessor/minicomputer system. The successful candidate will be expected to undertake research in the field of distributed operating systems on a microprocessor/minicomputer system. The successful candidate will be expected to undertake research in the field of distributed operating systems on a microprocessor/minicomputer system.

MANCHESTER

ANALYST PROGRAMMERS

make a career move to

GUARDIAN COMPUTER SERVICES

A leading North-west Software House

We have opportunities for Analyst Programmers and Programmers with the following experience:

RPG II, COBOL ASSEMBLER, BASIC

who wish to implement commercial projects from analysis through to installation for first-time users working on any of the following hardware:

IBM System/32, System/34, System/36, Series/1, 5110, Univac 90/70 or CTL 8000 range.

WE CAN ALSO OFFER THE FOLLOWING:

- * BASIC SALARY TO £6,500
- * PROFIT SHARE
- * FLEXI HOURS
- * REGULAR SALARY REVIEWS
- * IN-HOUSE HARDWARE
- * EXPENSES SCHEME
- * PENSION SCHEME

Contact us for an informal interview during which we can tell you much more about working for a Software House.

TELEPHONE OR WRITE TO KEN MCENTYRE

Guardian Computer Services Limited
ST. JAMES'S HOUSE
PENOLTON WAY
SALFORD, MANCHESTER M6 1JA
Tel: 061-737 7352

VICTORIA APPOINTMENTS LIMITED



WARRINGTON

1 Systems Programmer

c. £7,500

1 Analyst/Programmer

c. £6,500

1 Programmer

c. £5,500

Our Client, a multinational European manufacturing organisation developing real-time systems in an expanding on-line European network based on an IBM 370/148 (shortly to be replaced by a 3031) at their new purpose-built DATA CENTRE, now requires:

OS/VS1 Systems Programmer to work within a small specialist team responsible for providing a service to application development groups on all aspects of Database and data communications design including system generation, software package evaluation, General Operations Support, development and maintenance in an OS/VS1 environment.

Analyst/Programmer with approximately 3 years' COBOL experience (OS/JCL and CICS would be a distinct advantage) to join a project team engaged on the development of on-line Order Processing and Inventory Control.

Programmer with sound COBOL experience. Again OS/JCL and CICS would be advantageous.

The Company is actively pursuing a policy of major developments and expansion in on-line/T.P. areas.

Terms and conditions of employment are second to none including four weeks' holiday, bonus scheme, etc. Ref. No. CW20279

For an application form in respect of this and many other vacancies please contact Miss Val Halliwell, Victoria Appointments Limited, 24 Mosley Street, Manchester 2. Tel: 061-236 7319 (24-hour answering service) and 061-236 7417 or home 061-440 8134.

Northern Regional Health Authority

Computer Programmer

Applications are invited for the post of computer programmer in the Authority's Statistical Section. The successful candidate will join a small team working on a variety of applications in the statistical operational research and clinical research fields.

Candidates should be of graduate or equivalent status and must have pursued a course with a substantial mathematical or statistical content. Practical experience of programming for ICL computers, and of the George III operating system would be an advantage, but is not essential as training will be given.

Salary scale: £3452-£4421 p.a. (New entrants to the N.H.S. will normally commence on the minimum of the scale).

Application form and job description available from the Regional Personnel Officer, Northern Regional Health Authority, Bedford Road, Wakegate, Newcastle upon Tyne, NE2 4PY, to whom completed applications should be sent by 14 March, 1979.

UNIVERSITY OF NEWCASTLE UPON TYNE

NORTHUMBRIAN UNIVERSITIES
MULTIPLE ACCESS COMPUTER

(1) PROGRAMMING ADVISER (2) TEMPORARY SYSTEMS PROGRAMMER

(For a period of 3 years only)

Applicants should have an understanding and sympathy with both research workers and students, and a desire to extend the knowledge and use of computers. Users of the service come from many different universities and cover a wide range of academic disciplines. The Computing Laboratory has excellent facilities including powerful IBM hardware with interactive capability and a large repertoire of library programs.

The appointments will be made on one of the following scales, according to age, qualifications and experience: Range 1A: £3,893-£8,568 per annum; Range 1B: £3,080-£7,784 per annum. Membership of the appropriate University superannuation scheme will be required.

Further particulars may be obtained from the Senior Assistant Registrar, The University, 8, Kensington Terrace, Newcastle upon Tyne, NE1 7RU, with whom applications (3 copies) together with the names and addresses of three referees should be lodged not later than 22nd March, 1979. Please quote reference 12V.

ARPEEGEETOO

A black and white advertisement for RPG II. The background is a stylized illustration of a train station. A train is visible on the left, and a sign above the platform reads "MANCHESTER PICCADILLY". In the foreground, a robot stands with its arms outstretched, holding two large suitcases. The robot has a boxy body with a control panel on its chest that displays "RPG II". The text "RPG II" is also visible on the suitcases. In the bottom left corner, a large, bold, italicized quote reads: "Manchester's a great place for RPG II Programmers with the future in mind".

altergo



GULF STATES PROGRAMMERS/ANALYSTS

■ Wilkinson Match

JOHN GOLDSMITH
(Computer Recruitment) Ltd.



SYSTEMS ANALYSIS Advanced Projects

LONDON W1 £5000-£7500

Are you looking for the opportunity of doing creative analysis work at one of the most advanced installations in London?

Our clients have a considerable volume of new projects on hand, and this has led to analysis openings at several levels, from Junior through to Senior. These appointments offer the opportunity to:

- learn advanced techniques such as Database, Transaction Processing and Communications, using a large mainframe.
- work to good professional standards in a well-organised environment
- be involved in a wide variety of projects of an interesting and often technically challenging nature

The posts will interest career-minded DP professionals, typically:

- Senior Systems Analysts with a sound computing background (gained on any applications and any hardware) who seek to update their experience. Team leadership capability would be expected. (Ref. 872)
- Systems Analysts with one of two years' practical analysis experience, with the potential to absorb modern techniques. (Ref. 884)
- Trainee Analysts with a good educational background and a systems analysis diploma or a computing degree, or Analyst/Programmer who wish to move to pure analysis work. (Ref. 880)

Working conditions are good - modern offices and a canteen/restaurant. There will be a cost of living increase in April, and prospects are sound in a growth situation.

We are recruiting for these posts on behalf of clients. Please ring us for a confidential talk, quoting the appropriate reference, or leave a message on our answering machine after hours and we'll contact you.



EDP SYSTEMS 01.637
52-53 Margaret St. London W1N 7FF 5796

Disk Software Team Leader

North London To £8500

Our client, part of a large multi-national group, is currently developing a new range of highly sophisticated communications equipment.

Part of this new development involves integrating OEM disk drives via a microprocessor with the new central communications hardware.

They now require a Team Leader to control a team of Software Designers/Engineers and Software Programmers developing the specialised disk software for this new application. The successful candidate will be responsible for all aspects of the design and implementation of the software for both the hardware driver and the file manager.

Suitable candidates will possess in excess of 5 years experience in software development and have experience in I/O software development, information retrieval techniques or database implementations on small machines. Involvement in the setting up and controlling of a project team is desirable. Essential is a sound technical knowledge of software architecture and design and solid experience in an assembler level language.

Ideally candidates will be aged 25-35 with a degree and have the presence and ability to liaise with the various interface points both within the company and outside.

This is a rewarding and challenging role providing excellent career expansion and involvement in new areas of software and equipment using the latest techniques.

The company offers a good range of benefits which includes full relocation assistance if necessary.

To discuss this challenging new opportunity in more detail, telephone Morley Holliday or write in strictest confidence quoting reference MGH 2122.



**Lloyd Chapman
Associates**

123, New Bond Street London W1Y 0HR 01-4081670

The best equipment deserves the best support

Data Logic is one of the country's most successful, and fastest growing, systems companies. Our product markets include terminal and distributed systems, word processors and data communications equipment. Our target is to more than double turnover over the next five years.

Our Customer Engineering Division provides the nationwide field service our users expect. Its staff deal with hardware and software, with a wide range of state-of-the-art products, and with a diversity of user environments. The work is challenging, placing a high premium on initiative and experience.

Systems Engineer

The rapid growth of the Division has created the need for a Systems Engineer (ref CE/1) to provide specialist support to the field service force. He or she will have a degree in electronic engineering or computer science, followed by at least three years in a specialist support role with a mainframe manufacturer. This is an important new role within the Division, providing considerable career scope for an energetic and able individual.

Field Service Engineer: Oxford

We are looking for a Field Service Engineer (ref CE/2) to provide preventive and corrective maintenance at user sites in the Oxford area. He or she will have previous experience servicing computers and associated peripherals. An ONC or HNC in electronics or computing is desirable, but not essential. Whilst the position will clearly be of interest to engineers living in the area, relocation expenses will be paid should the successful candidate wish to take the opportunity to move to Oxford from elsewhere.

Both positions
will attract
an excellent
salary and
benefits, and
a company car.

**Data
Logic**

Write or call, quoting the appropriate
reference number: Kathy Martin,
Data Logic Limited, 29 Mayfield Road,
London NW11. Tel: 01-485 7288.

A Raytheon Company

MANAGEMENT & EXECUTIVE SELECTION

telephone 01-637 9611

FIELD SERVICE ENGINEERS

SALARY PACKAGE: To £6½K + car.

AREA: Glasgow, Edinburgh, Central Lowlands.

EXPERIENCE: Repair of Minicomputers and Peripherals.

OPPORTUNITY: A full Service Centre is to be developed in this area providing exceptional career progression opportunities for capable engineers.

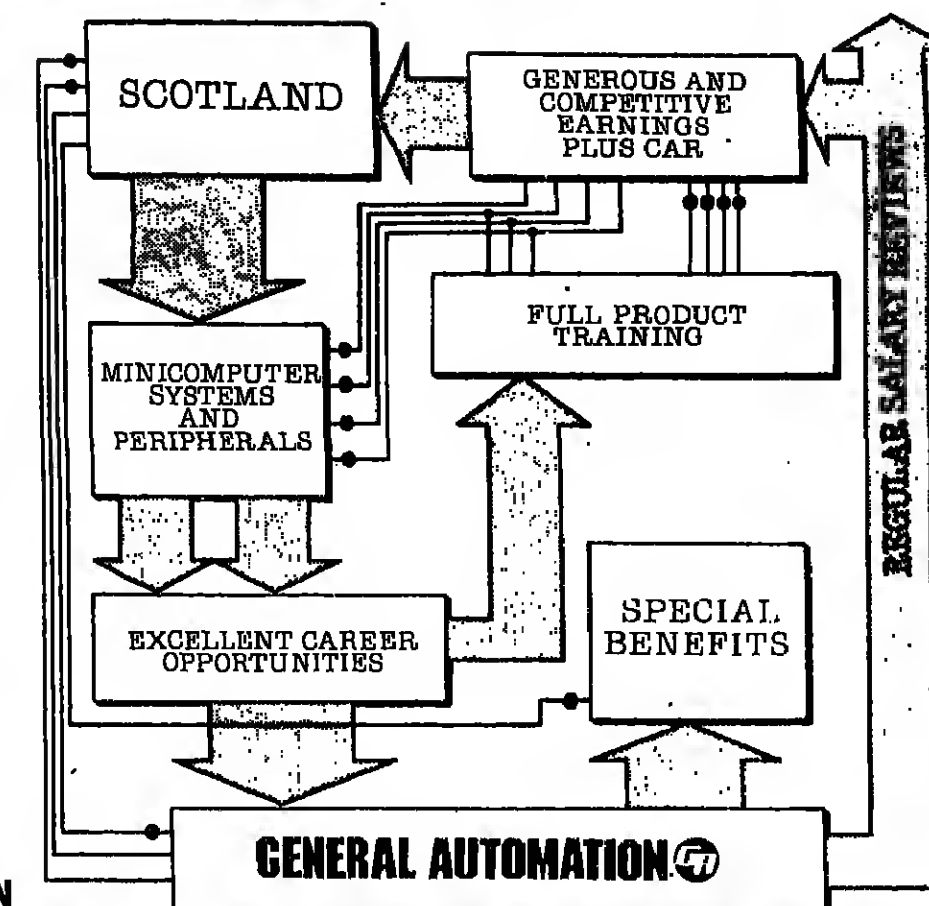
TRAINING: Full product training at our European Training Centre on a regular basis.

FORWARD-LOOKING COMPANY: The U.K. Division of this multi-million dollar American company is well established and is currently undergoing a rapid but controlled expansion. It is in the forefront of the latest technology, a fact which is regularly highlighted in the Trade and International publications.

SPECIAL BENEFITS: Assistance with relocation if necessary, free BUPA, free life insurance, excellent pension scheme.

For positive career advancement, contact Peter Gorton

Suite 201/6, Albany House, 324 Regent Street, London W1R 5AA 01-637 9611 **MANAGEMENT & EXECUTIVE SELECTION**



North London To £8500

Our client, part of a large multi-national group, is currently developing a new range of highly sophisticated communications equipment.

Part of this new development involves integrating OEM disk drives via a microprocessor with the new central communications hardware.

They now require a Team Leader to control a team of Software Designers/Engineers and Software Programmers developing the specialised disk software for this new application. The successful candidate will be responsible for all aspects of the design and implementation of the software for both the hardware driver and the file manager.

Suitable candidates will possess in excess of 5 years experience in software development and have experience in I/O software development, information retrieval techniques or database implementations on small machines. Involvement in the setting up and controlling of a project team is desirable. Essential is a sound technical knowledge of software architecture and design and solid experience in an assembler level language.

Ideally candidates will be aged 25-35 with a degree and have the presence and ability to liaise with the various interface points both within the company and outside.

This is a rewarding and challenging role providing excellent career expansion and involvement in new areas of software and equipment using the latest techniques.

The company offers a good range of benefits which includes full relocation assistance if necessary.

To discuss this challenging new opportunity in more detail, telephone Morley Holliday or write in strictest confidence quoting reference MGH 2122.



**Lloyd Chapman
Associates**

123, New Bond Street London W1Y 0HR 01-4081670

UNIVERSITY OF SALFORD
Computing Laboratory

GRAPHICS PROGRAMMER

The University of Salford acts as lead site for GINO-F. The post involves support and distribution of the GINO-F package and associated satellite libraries to 1900 and 2800 universities throughout the UK. The post involves a certain amount of travel within the UK and is initially for a period of 1 year but an extension to July 1982 is currently under review.

Applicants should possess a good honours degree and knowledge of major graphics packages, Beolit II and Geolit II or 2800 experience and familiarity with university computing services desirable but not essential.

Salary on scale £3883-£6555 (under review), USS superannuation. Rel. CL/83/CW.

ELECTRONICS DEVELOPMENT ENGINEER

Required to assist the laboratory in the design and development of digital electronics services including microprocessor based systems. Applicants should have a degree in a relevant discipline and wide experience within the digital electronics field.

Salary scale £3883-£6555 (under review), USS superannuation. Rel. CL/84/CW.

Further particulars and application forms available from the Registrar, University of Salford, Salford M6 4WT, to whom completed applications should be returned by 8 March, 1979, quoting appropriate reference.

COMPUTER MANAGER

Earn up to £8,462

Surry

Based in the Treasurer's Department at Dorking this is a rare challenging opportunity for the right person to lead the Council's Computer Team. The present configuration is an ICL 2903 with EDS 80 Disc Drives, direct data entry, line printer and card reader.

A large number of systems are being processed, with development of on-line enquiries now being undertaken; 37 hour week with no shift. Removal and setting in allowances would be payable if you have to move house.

For an application form contact: Mole Valley District Council, Tel: Dorking 8001 Ext. 229

OPERATORS

Junior and Senior Operators with a minimum of 6 months' experience on any mainframe required urgently. Listed below is a small selection of current vacancies.

ICL	GU	Snr Op	2 yrs	£4500
ICL	GU	Operator	1 yr	£4200
ICL	ANY	Operator	1 yr	£4200
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IBM	OS	S/Ldr	2 yrs	£4200
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If you have at least 12 months experience in MK IV, preferably under OS, then join us at the start of a major phase of development on a project running on IBM 370/158.

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Applications are invited from suitably qualified persons for the post of Trainee Programmer for which full training will be given.

For an application form, please write to or telephone: Creig Thruwell, Whinney Murray & Co, Turquand Barton Mayhew & Co., 57 Chiswell Street, London EC1Y 4SY. 01-628 6088.

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At this stage we are probably interested in applicants with two or more years experience, but there will be some appointments for staff with less experience later in the year.

ABOUT CAP

Computer Analysis and Programmers was established in 1962 and has been profitable in each of the sixteen years of its operation. The Group now employs over 800 professional staff. All staff take part in our well established career development programme and project performances are carefully monitored to ensure that individual skills and aptitudes are taken into consideration on future projects. Benefits include at least 4 weeks holiday, a generous sick pay scheme, group sickness insurance, staff mortgage service, a share purchase scheme and regular salary and promotion reviews. Senior staff are eligible for an annual bonus scheme. Removal assistance is available where appropriate. Local interviews will be arranged where applicable. If you would like to apply please write or telephone, quoting reference number CW1176, to:

Tony Knott, Recruitment Manager,
Computer Analysis and Programmers (UK) Ltd., CAP House,
14/15 Great James Street, London WC1N 3DY.
Telephone No: 01-242 0021

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Ref: 9/1

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O.K. so maybe we can't pay the highest salary in the market place, but a nice working environment, interesting work,

good personal development and a management that cares is worth a great deal; probably a lot more than more money!

If you are interested in having a look round the RCU, ring Sharon Edmunds on Oxford 64861 Ext. 387, or for an informal chat about the posts, contact either Bob White, Ext. 684, or Alan Sand Ext. 563.

For further details and an application form, please ring quoting reference number V30/79: The Recruitment Officer, Oxford Regional Health Authority, Old Road, Headington, Oxford.
Tel. Oxford 64861, Ext. 249/307.

Oxford Regional Health Authority

Contract Spot

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Meteor Computer Consultants Ltd.

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Successful applicants will possess at least minimum requirements, working experience in IBM OS COBOL together with associated JCL and dump-reading skills. Of these applicants, preference will be given to those who have experience in online IMS (DL/I) programming. Consideration will also be given to OS COBOL experience coupled with any of the following: DL/I data base design, IMS (DL/I) batch programming, CICS, PL/I and Assembler.

Salaries from £7k to £13k depending upon level of experience, plus relocation reimbursement possibilities.
Interviews will be conducted in London from March 3 to March 15. Applicants may be made by telephone. Reply by March 01-237 8170 (March 3 to March 9) or by writing as soon as possible to Ralph Payne, Kensington Chase Hotel, W14 8LW, London, W8 6SF.

LONDON BOROUGH OF HAVERING

Borough Engineer and Surveyor's Division

SENIOR ENGINEERING TECHNICIAN

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Application forms and further details from the Borough Engineer and Surveyor, Technical Office, Spilby Road, Harold Hill, Rostford, Essex RM3 8UU to be returned by Friday, 16th March 1979.

datascene international

SYSTEMS ANALYSTS

City to £7000

A major finance company based in the City wishes to recruit additional staff to work on the development of new projects for their expanding IBM 370 system. The individuals they are seeking will have at least two years' experience and must have implemented one major system. Any knowledge of CICS or PL1 would be a distinct advantage.

In addition to a highly competitive starting salary the company offers an attractive benefits package and excellent working conditions.

Reference PG 9/1

COBOL PROGRAMMERS

City to £5000 + Mortgage

A major financial organisation with an expanding ICL 2900 system is seeking several COBOL programmers. These positions will be ideal for people with 12 to 18 months' experience on any mainframe, and who want ANALYSIS prospects.

The company offers high starting salaries, Season Ticket Loans, Flextime and a Subsidised Mortgage.

01.439 7871

Reference PG 9/2

COMMERCIAL FORTRAN

North London

to £7500

A large international company has undertaken a number of new development projects in the commercial and Real-Time fields, and so require several programmers with at least 2 years' experience in commercial applications using Fortran.

Any Real Time experience would be of interest but this is not essential since full training will be given. The company offers varied and interesting work coupled with a full range of company benefits.

Reference HK 9/3

JUNIOR FORTRAN PROGRAMMERS

West London

to £4500

A well known company in the Consumer Industry currently needs several Junior Programmers who wish to build for their own future.

The minimum experience required is just 6 MONTHS FORTRAN programming on any mainframe or mini. Training in Systems Analysis will be provided and exposure to mainframes (an IBM 370/138), mini computers (on Prime 300's and micro machines), will all ensure a wide range of experience and a 1st class choice of career prospects in the future.

01.439.7871

Reference HK 9/4

IBM & ICL MAINFRAMES

IBM SYS 3 £8000
Operations Manager required for international company based in W. London. Minimum of 4 years' system 3 experience essential.

IBM 370 OS £5500
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IBM 370 OS £4300
Operators with 6 mths + experience required by busy installation based in the city. Unusual shift pattern giving plenty of free time.

IBM 370 DOS £4500
Bureau in central London requires an operator with 1 yr + DOS experience. Perks include pension scheme and annual Bonus.

IBM SYS 3 £4200
Operator with 1 yr + experience for 2 shift working SYS 3/16 etc.

ICL 1900 £4000
City based installation requires an operator with 1 yrs experience preferably on G II. 2 shifts only and annual Bonus.

ICL 2900 £4250
Shift leader required with 2 yrs + 1900 or 2900 experience, by company based in N.W. London. 2 shift working only and some company product discounts.

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Datascene Recruitment Ltd.

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London W1R 7FB

01-439 7871

SYSTEMS PROGRAMMER

City

Negotiable

A large and highly respected financial institution is seeking a capable and imaginative OS or OS/VS Systems Programmer to work in their City based installation. They are using two IBM machines — a 370/148 and a 370/158, running under OS/VS in both Online (Data Base) and Batch Processing modes, hence a background in either discipline would be equally acceptable.

The ideal candidate would have some operating experience, with a general programming background, preferably in ASSEMBLER or PL1, as well as a minimum of around 18 months in OS or OS/VS Systems Programming. Since there is a heavy commitment in the Stocks and Shares field some exposure in this, or in any other financial area, would be an advantage.

Salary will be totally dependant upon ability and experience and will not prove a limiting factor for the right person, so if your experience tallies in any way please contact us at once.

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Reference PG 9/5

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Other benefits include a quarterly productivity bonus scheme, opportunities for overtime, subsidised staff restaurant, pension scheme, and midweek rest days etc.

For further details call

Mike Harmer on 01.439.7871

PL1 PROGRAMMERS

West End

to £5500 + Mortgage

A leading commercial organisation with an expanding 370/135 installation in the West End is seeking a number of PL1 programmers to work on a variety of new and existing projects. The positions are ideal for enterprising young programmers with at least twelve months' experience on IBM Hardware. A knowledge of OS/VS1, although not essential, would be a distinct advantage. The company offers a first class salary, and fringe benefits include Flextime, Season Ticket Loans, and a Subsidised Mortgage.

Reference PG 9/6

RPG II ANALYST/PROGRAMMERS

City

to £8000 + Mortgage

RPG II people at all levels are needed for this financial company based in the City. The experience required varies from 18 months to 5 years, covering PROJECT LEADERS, ANALYSTS and PROGRAMMERS. TP and Data Base work will be involved, promotion prospects are superb, and benefits include LV's, Free Pension, Season Ticket Loans, and Subsidised Mortgages.

01.439.7871

Reference PG 9/7

PDP 11 PROGRAMMERS

London & Home Counties

to £8000

If you have had at least 3 years' experience of programming on PDP 11's we have many vacancies which will be of interest.

Your experience should include programming in either BASIC + /BASIC + 2 ASSEMBLER or FORTRAN under RSTS, RSX11 etc. Applications vary from highly technical to commercial and telecommunications.

All positions offer excellent salaries, combined with the opportunity to progress in your particular field.

Reference HK 9/8

MINI ASSEMBLER PROGRAMMERS

City

to £7500

An International Banking organisation in the heart of London is seeking MACRO ASSEMBLER people with a minimum of 2 years' experience.

The company uses DEC PDP11 equipment, and is currently developing an On-Line System, so any experience in this field would be advantageous. Salaries will be exceptionally good, and the package will include a Non-contributory Pension Scheme, interest free Season Ticket Loans, an annual Bonus Scheme in operation.

01.439.7871

Reference HK 9/9

OTHER MAINFRAMES

HONEYWELL GCOS £4800
Minimum of one years experience for senior operator on a large GCOS system. Pleasant location and career prospects are excellent.

HONEYWELL OS-2000 £4500
18 months experience required for company in N.W. London. The main advantage of this position is no night shifts.

UNIVAC EXEC 8 up to £8000
At least three years experience needed for Senior Operator in an installation in C. London. A thorough knowledge of 1100 series is necessary for this no night post.

UNIVAC OS 3 £4300
Senior operator with 18 months experience using OS3 is required for a fast developing site with two shifts.

NCR B1 £4000
Six months experience needed for junior operators post. All banking perks apply and no night shifts.

NCR ANY £4200
An operator with 18 months good NCR experience who is ready for the CRITERION range is required for 3 shift job.

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01-439 1856

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LONDON, W.1 £5700-£6200

Acting for a large West End ICL installation, we are recruiting for two management posts, with sound career prospects, in a well-organised environment with good working conditions. There will be a cost of living increment as from next April.

OPERATIONS SUPERVISOR

DAY SHIFTS ONLY — 5-DAY WEEK

You would be responsible for the efficient operation of two ICL 1900s with two shifts of operating staff. However, you would not be required to work shifts, but you would need to be reasonably flexible in your working hours.

You will probably have had at least five years' operations experience, including supervision, together with a thorough knowledge of 1900 Manual, Executive and George 2 operating systems.

The post might well suit an older applicant who sees his career developing later into general technical management. (Ref. 888)

SHIFT CONTROLLER

TWO SHIFTS ONLY — 5-DAY WEEK

You would be responsible for two shifts, operating a large ICL 2900 configuration under VME7B. There is substantial use of communications, including both TP and MAC, and IOMS is being introduced.

You should have had significant supervisory experience of major operating systems in a communications environment and about five years' operations experience in total. While 2900 and VME7B knowledge is highly desirable, outstanding candidates with a background on other large mainframes will be considered and necessary training provided. (Ref. 899)

Please ring us for a preliminary confidential talk, quoting the appropriate reference, or leave a message on our answering machine after hours and we will contact you.

EDP SYSTEMS 01.637 5796
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U.K. — SUNBURY £5,500

A Cobol programmer with two years' experience is also required to work at our European O.P. Headquarters in Sunbury, Middlesex. Initially working on a 360/50 DOS System the job offers scope for increasing responsibility and involvement as the European data processing requirements increase and our installed mainframe progress towards a distributed processing network.

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A vacancy exists for a geologist to work in Edinburgh on computer applications in a group developing a data bank for subsurface geology and geophysics on an in-house POP-11 computer. A knowledge of Fortran and interest in computer graphics are essential.

Qualifications and Age
Applicants should normally be under age 30 and have a degree or equivalent in an appropriate subject. Applicants will be at Scientific Officer or Higher Scientific Officer level depending on qualifications and experience.

Salary
Scientific Officer — £2839-£4415
Higher Scientific Officer — £4101-£5448

Starting salaries may be above the minimum. Non-contributory pension scheme. The staff of the Council are not Civil Servants but their pay and conditions of service are similar to those of scientists in the Civil Service.

For an application form, to be returned by 23 March, 1979, write to: **Establishments (Recruitment) Section, Institute of Geological Sciences, Exhibition Road, London SW7 2BG.**

Please quote reference SO/CU/78/1

UNIVERSITY OF EDINBURGH
Program Library Unit
RESEARCH
ASSOCIATE/
PROGRAMMER

Applications are invited for the above post which is offered for one year in conjunction with an SRC sponsored investigation into the optimisation of large programs on ICL 2900 series computers.

The work will involve studying the interaction of the program with the operating system and the reprogramming of sections of them. A computer science graduate would be preferred but other graduates with adequate programming experience will be considered.

The salary scale is £3384-£4832 per annum.

Further particulars are available from the Secretary to the University, University of Edinburgh, Old College, South Bridge, Edinburgh EH8 9YL, to whom applications should be sent on or before 15 March 1979. Please quote reference 5007.

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Resulting from expansion, we need a third Project Manager, to be responsible for the development, implementation and re-design of computer based management information and control systems, including linking remote companies in the Group into the central computer facilities.

Applicants should be self-motivated, with good management skills and about three years' systems development experience preferably in a commercial environment.

Systems Analysts up to £7,250 p.a.

To be involved in the re-design of existing commercial and financial information systems and development into new areas.

Applicants should be able to use their own initiative and have three years' experience, some of which should have been in systems. Applications are also invited from experienced programmers wishing to move into systems analysis.

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Men and women telephone for job details: Maureen Greeves on 01-636 3876, Matthew Hall Group Services Limited, 101-108 Tottenham Court Road, London W1A 1BT.

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Sunningdale Road, Leicester LE31UR Telephone (0533) 871355

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We are part of the £80 million Pritchard Services Group and need a capable analyst/programmer to play a key role in the development of systems, using his/her initiative with the capability of working closely with user departments.

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We offer an attractive salary in the range £8,000 to £8,500 according to age and experience, plus good conditions of service.

Interested? Please write to David Westcott, Personnel Manager.

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SENIOR ANALYST To £8500 + car
This is a challenging opportunity to work in a new DP environment, with financial, stock control and retail applications. You must have your own analysis experience and the desire to contribute to business and HERTS.

RPG II PROGRAMMER £7,000
Two years' RPG II experience is required to join the young and vibrant DP team working for a successful financial company who have a future, a bonus scheme, subsidised meals and other benefits. Apply to: **management, R. HODGKIN.**

Please phone for an application form.

AMES PERSONNEL
Employment Agency Suite 14, Dordale
119 Clarendon Road, London W1R 3LH

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Ring David Abbey for further details on 01-281 8018.

UNIVERSITY OF SUSSEX

Department of Physics

RESEARCH
COMPUTING
ASSISTANT
(No advertisement)

Applicants are invited for the post of Computing Assistant to participate in two research projects which are concerned respectively with examples of the behaviour of gases in the kinetic regime and with the attenuation of X-rays in various materials. No special knowledge of the relevant physics is required but mathematical and computational expertise is necessary. Experience of data processing with minicomputers would be very valuable. Knowledge of FORTRAN is essential and a knowledge of another high level language would be useful.

The person appointed will work in a small team of computing staff supporting teaching and research in the Physics Department. The post is available for two years and the appointment will be made on a salary range of £3384-£4832 depending on age and experience. Half-time appointments would be considered.

Applicants, including the names of two referees, should be sent by 23rd March, 1979, to the Assistant Secretary (ITG), University of Sussex, Brighton, Sussex.

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We wish to recruit a Sales Manager and Sales Executive for our growing Scottish operation. This represents an excellent opportunity for ambitious professionals to develop an area with enormous potential. You should have a proven sales track record within the mini computer business systems industry combined with the personal attributes to work in an expanding situation. The wide product range is acceptable to both first time and sophisticated users and is supported by an above average real time operating system.

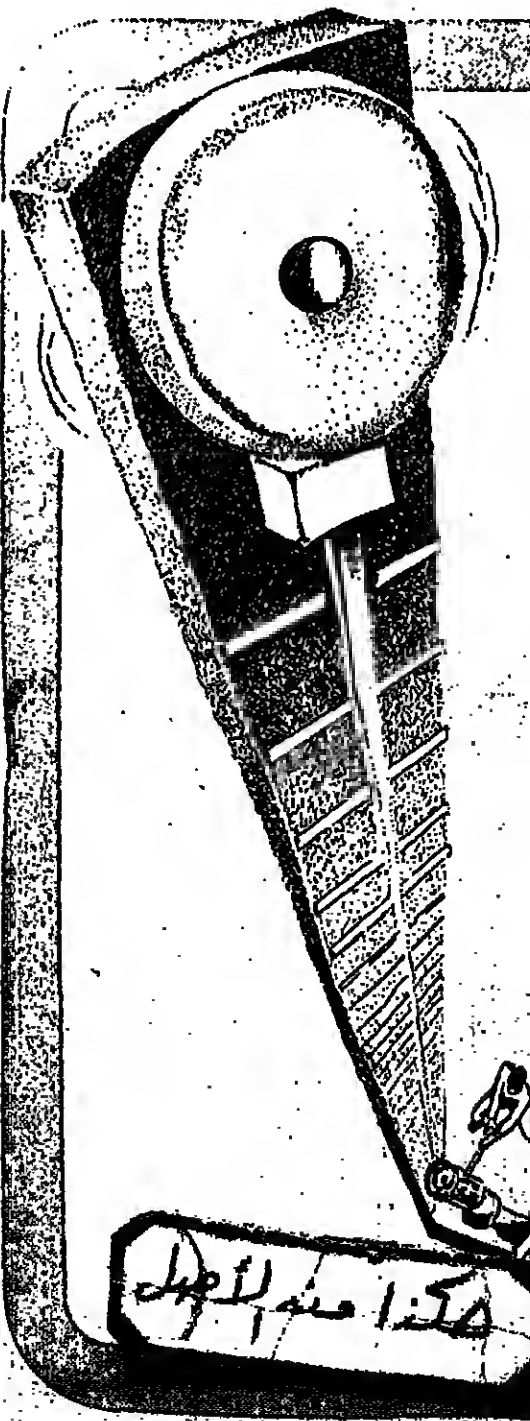
We offer excellent conditions of employment including negotiable base salaries, commission, car and relocation expenses where applicable.

Initial interviews will be held in London, Birmingham, Manchester and Scotland. For further details contact Sheila Bradbury on 061-833 0427.

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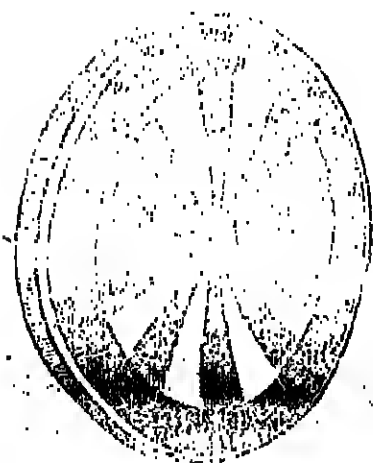
To lead team responsible for development and implementation of commercial systems. Knowledge of structural design and programming, TP desirable. Prof exp of financial accounting, planning/forecasting and project control.

This European group has openings for persons with leadership ability for ANY environment to work in real-time business and mini computer systems.

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F37
DATA PREPARATION
SUPERVISOR

AP.3 £3,732 p.a. to £4,148 p.a.
inclusive of supplement

The council has a vacancy for a Data Preparation Supervisor in the Finance Department at Beech Hurst, Andover.

The successful applicant will ideally be experienced in data preparation by Key to Disc equipment, as the Council is taking delivery of a new Redifon Key to Disc system linked by telephone line to an IBM 370 (at Hampshire County Council in Winchester). The post is the senior of a team of three (3) and carries the responsibility for the organisation and operation of the Computer Input together with the operation of an Olivetti Cash Receipting Master Terminal which is also linked to the IBM 370. The work will provide an opportunity to be involved in the future development of the installation. Specialist training will be provided where required.

For application forms please contact:
The Personnel Department, Council Offices, Dutton Road, Romsey, Hampshire (Tel: Romsey 515117, ext. 42).

Closing date for return of completed application form Wednesday, March 14, 1979.

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Xoren Computing Ltd.
28 Meddow Street
London W1R 9PF
Telephone: 01-829 5932

STERLING DISTRICT COUNCIL
FINANCE DEPARTMENT
SYSTEMS ANALYST /
PROGRAMMER

Salary scale: API/II £3,561 to £4,245
(inclusive of supplement)

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The Director of Finance
Municipal Buildings
Sterling FK8 2HU

Not later than 14th March, 1979.
D. M. BOWIE
Chief Executive Officer

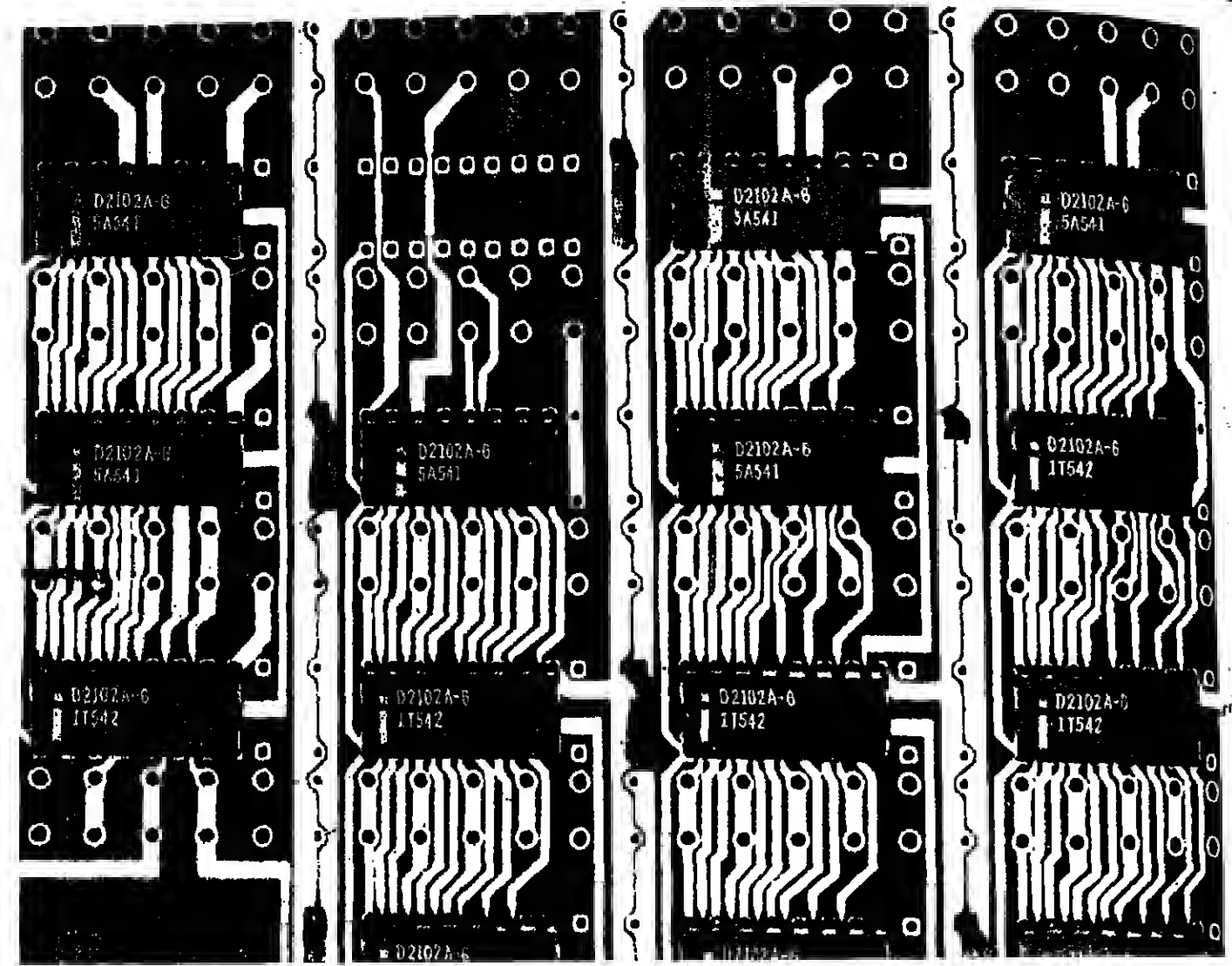
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CW/8/1

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Applicants should be Systems Analysts, preferably with a programming background, and ideally with a knowledge of IBM equipment. Ability to communicate easily with all levels of staff is essential as the position reports directly to a member of the Board. The D.P. Manager is also responsible for the education and training of the user department.

For further details and a confidential discussion contact the advertising consultant.

CW/8/2

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CW/8/3

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Applicants' background should include a degree, experience in process control, Assembler and high level languages, ideally COBOL and FORTRAN. Familiarity with PDP RSXII would be advantageous and the ability of a foreign language would be desirable but not essential.

CW/8/4

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CW 8/5

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CW/8/6

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A small systems company, based in Bracknell, is in the process of expanding its operation and consequently is able to offer unique opportunities to enter the micro processing side of computing.

The people required must be graduates with a 'good all-round' knowledge of programming and systems design, and should have experience of FORTRAN and/or assembly-level language. Based on data general hardware, and various micro processors. The projects include such varied applications as the graphic arts industry and the legal profession.

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CW/8/7

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Middlesex
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The successful applicant will have at least 3 years' experience of commercial systems within a manufacturing environment, and should have experience of at least one major project from feasibility study through to implementation.

The installation is based around ICL mainframe in the 2800 range, and therefore ICL experience, though not essential, would be an advantage.

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CW/8/8

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Dublin
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In order to help meet the increasing demand for their services in the selection and installation of mini computers, they wish to recruit analyst programmers with substantial experience in the following areas:

- Design and implementation of a wide range of commercial systems.
- Knowledge of a variety of commercial and engineering packages available on at least one mini computer.
- Programming experience in at least one language.

Interested applicants, who should have the capability to progress to project leadership should telephone Jim Corrigan on Dublin 788677.

CW/8/9

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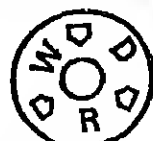
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Systems Analyst

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Systems Analyst

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You should have at least two years' programming experience. Please write giving details of age, qualifications and experience including languages, hardware and application areas with which you have been associated quoting CW/21 to:-

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MYRIAD

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NORTH WEST LONDON

To £6,750

Our client, a major bureau installation is anxious to recruit an additional Senior Programmer to support the planned growth in 1979.

The company provide a service to a wide range of industries and it is expected that the successful applicant can lend his experience to developing future applications to be used in a bureau environment.

The ideal candidate should have a minimum of two years' commercial COBOL programming experience, and must be capable of recognising and reacting to user requirements. The position provides an outstanding opportunity to join an enterprising installation where every effort is made to encourage team-leading potential.

The position offers excellent scope for advancement together with the opportunity to work on a variety of projects.

Ref: EN1/103

ANALYST/ PROGRAMMERS

BEDFORDSHIRE

To £7,000

Our client, a large and successful manufacturing organisation with a multi-million pound turnover are about to embark on their next stage of computer development. In order to ensure the effective implementation of this project within schedule additional Analyst/Programmers are required to join a professional team working to very high standards.

Although the company operates a large IBM 370 mainframe, applicants with relevant experience on other manufacturers hardware are just as eligible as a mature approach and sound manufacturing systems knowledge are prime requisites.

Successful applicants must possess a minimum two years COBOL programming experience together with a least one year's analysis involvement. In return for which attractive career progression and company benefits are offered.

Ref: N1/103

LEAD PROGRAMMER

BERKS/BUCKS BORDER

To £6,000

We are seeking an IBM programmer with a minimum of two years' experience of COBOL. Ideally you will be keen to lead a small programming team and gain in-depth technical involvement in real-time programming with database and communications applications. Extensive training in software will be given and the opportunity to develop your career into either analysis or alternative database and software design are very real possibilities.

The company, a well-established engineering concern, is currently developing a broad range of on-line real-time applications in a project oriented environment. These positions both offer considerable career potential with a company committed to technical development of computer personnel. Relocation assistance, five weeks holiday and an excellent staff canteen together with a busy professional working environment make this an excellent career opportunity.

Ref: E2/O103

IBM OPERATOR FOR TECHNICAL SUPPORT

SLOUGH

£5,000-£6,000

A new position has recently been created with this busy Engineering Company, by the installation of a new IBM mainframe. While several on-line application systems are currently being developed for the new machine a Technical Support Programmer is required to implement these systems on the new hardware. Working with OS-JCL and COBOL the successful applicant will implement these systems, trouble shooting run time problems and generally tuning the performance of the systems once established.

Although COBOL experience is required training will be given since, in the first instance, in-depth experience of IBM 370 operation and OS-JCL are of prime importance.

Company benefits, and conditions of employment are excellent, together with potential to move into a technical specialist role.

Ref: E3/O103

MYRIAD APPOINTMENTS LIMITED

30 Fleet Street London EC4Y 1AA

01-353 0981

01-353 0981

Recruitment



In Informatics

Jnr/Snr/Mini/Micro Specialists Denmark

Salaries: £10K — £15K

Our client is the leading Scandinavian Systems and Software Development Group recognised as Market Leaders in its field. Owing to continued expansion in a wide variety of applications areas including Data Communications, Message Switching, Computer Networking and Mini Computer Software, a significant number of experienced career orientated personnel are urgently required.

Emphasis will be placed on technical involvement and in-depth experience in the areas of activity outlined above. Whilst a degree or equivalent qualification in either Computer Sciences or Mathematics is desirable, significant relevant experience will be considered in lieu. Of essence is a

solid Assembler background within a Mini Computer or Microprocessor environment. Project locations are primarily in Copenhagen and suburbs although candidates can work (should they so desire) in the Netherlands, Sweden or Germany. Of prime importance is demonstrable enthusiasm to relocate to Denmark for an extended period. Every assistance will be given in relocation, including the cost of removal of all personal effects. Initial accommodation expenses and a resettlement allowance.

Interviews will be held as soon as applications are received and offers of employment will be made within 10 days of interview.

(Ref. LWA)

Analysts & Programmers Inner/Greater Manchester

Salaries: c £6K - £8.5K

Our client is a major International Company recognised as market-leaders in its field and has retained Logistix to assist in recruiting the following key project team members — Real-Time Mini Programmers, Data Base Designers, Communications Programmers and Applications/ Software Programmers. Experience of any of the following will be especially welcome: RSX 11, RTL 2, Assembler, PL-1, COBOL, IMS DB-DC. For those who enjoy overseas travel there will be ample

opportunity to work at the company's E.E.C. offices in Sweden and the Benelux. Successful candidates must demonstrate qualities of leadership potential, determination and be self starters. It is expected that all staff should have the ambition to achieve Project Management status quickly.

Interviews will be held at one of the company's three UK offices most convenient to the candidates residence.

(Ref. LWA)

RSX 11 Programmers Netherlands

Salaries: £10K - £15K

Many of the forefront developments in Mini Computer Software and Data Communications are emanating from Europe and if you aim to move into frontier technology the opportunity arises to join a highly reputed Systems and Software Development group engaged in prestigious projects in the areas of Data Communications, Message Switching, Networking and Process Control.

Existing and new project teams require Consultants, Systems Designers, Senior Analysts, Analyst/ Programmers and Programmers with relevant experience in at least one of the above areas of activity. In particular, extensive Mini Computer Assembler experience is essential. Successful candidates are likely to be aged between 22 and 35

years with a degree or equivalent (Computer Sciences or Maths) or extensive relevant experience in lieu.

You will most certainly contribute valuable expertise to this industrious group whilst expanding your own threshold of experience through working closely with other professionals at your own level.

Our client will pay full relocation expenses for you and your family and provide a generous resettlement advance in addition to meeting the costs of temporary accommodation pending location of permanent housing. Numerous other benefits contribute to make this a very attractive opportunity.

(Ref. LWA)

Scientific Programmer Italy

Salary: £10K - £12K

THE CLIENT: A multi-national Research and Development Institution is further expanding its team strength in the areas of scientific project implementation and requires several permanent scientific Programmers with Mini Computer Assembler or Fortran experience. Incidentally, we particularly wish to speak to candidates with current or very recent HP 2100 involvement.

Numerical Analysis, Image Processing and Operational Research. The scope and involvement of these applications is likely to be both challenging and interesting and is certain to push the horizon of technical sophistication to the limit.

THE PACKAGE: In addition to a very realistic salary the company also provides full relocation expenses, medical insurance and pension schemes as well as initial paid accommodation expenses for you and your family. Interviews will be held in London during mid and late February and offers will be made by the end of the month.

(Ref. LWA)

Small Machine Programmers Central & N.W. London

Salary: £5.5K - £8K

A European manufacturer of V.R.C. and Office Business Systems seeks several additional Programmers and Systems Analysts who will be engaged in developing several new challenging commercial applications. The opportunity also exists to develop into IBM mainframe projects at a later date.

Software house/turnkey supplier or manufacturer. Particular hardware experience is much less important but, generally knowledge of Kierzie, Nixdorf, Olivetti or Philips is significant.

Salaries are above market rates and in addition to a comprehensive range of Company benefits including contributory pension scheme, sickness benefit, Project bonus and 4 weeks annual holiday, interviews will be held in London in February and March.

(Ref. LWA)

Logistix, Freepost 32, London W1E 3YZ

360 Oxford St.
London W1N 9HALicensed by D.O.E.
Licence No. SF (A) 2887

01-491 4636



Telex: 28800

SYSTEMS ANALYST £7,000

NORTH LONDON

The appointment is for a systems analyst with a good background in commercial data processing, preferably within a manufacturing environment. Candidates should have at least two years in systems analysis and previous programming experience.

Application areas of particular interest are financial, order processing and stock control where current methods are to be replaced with on-line systems. The installation is a Univac 90/30.

Our client is a major manufacturer serving the construction industry with a comprehensive range of nationally known products. The position is open to someone seeking a real involvement over a wide variety of tasks within the company's computer department. Location is North London.

Applications can be made in writing or by telephone to Miss Anne Sweeney at these offices—

01-582 2600



Modern Marketing Limited

Alcibiades House, 93 Albert Embankment
London SE1 7UB
Telex 21407 MMHGRP G

Systems Software Engineers

Air Defence Communications &
Command/Control Systems
CALIFORNIA

Our client, one of the largest international organisations involved in the design and manufacture of electronics systems, offers outstanding opportunities in Southern California on exciting and exacting projects with generous rewards.

We require engineers able to perform the top down design leading to definition of software requirements for air defence, communications and command and control systems. This involves total software responsibility from conception to implementation, and the ability to document performance requirements in accordance with military documentation standards such as MIL-STD-490 for B5 software applications.

Experience must include a minimum of four years in a major UK aerospace or defence contracting company, and a relevant qualification.

Attractive starting salaries will be accompanied by generous relocation assistance for you and your family to the US. Interviews will be held in London in the near future.

If you are interested in exploring these opportunities, in strictest confidence, write, or, better still, telephone, quoting Reference No. 8188, to P. Stafford, Moxon Dolphin & Kerby Ltd, 60 St. Martin's Lane, London WC2N 4AF. Tel. 01-836 1500.

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MANAGEMENT SELECTION

CLASSIFIED COPY

All classified copy should reach our offices no later than 5.30 pm on the Monday preceding Thursday's publication. If complete artwork is supplied 12 noon on a Tuesday.

Ring David Abbey for further details on 01-281 8018

We're successful because our staff are

Data Logic operates at the forefront of computing, applying the very latest hardware and techniques to practical commercial problems. We cover the range from mainframes to the smallest computers. We are leaders in the use of microprocessors for applications that not so long ago required far larger machines. Several of our projects involve dispersed networks of ten or more minicomputers.

The exceptional scope of work is important to our staff. We can match their individual experience to their projects. Equally, we can ensure that each project adds to their experience. As

computing itself develops, so do they.

Over the past year Data Logic has grown dramatically in size, in scope of work and in reputation. Our expansion has meant unrivalled opportunities for career progression. We are not prepared to promote people before they are ready for it. But when they are ready — and we give all the assistance we can — the positions as senior programmer, senior analyst, project manager and consultant will be there waiting for them.

The reason is simple. We know that we are successful only if our staff are.

Senior Software Staff

(Ref PS/01)

For mainframe, minicomputer and mixed processor systems, usually supporting terminal networks. Increasingly Data Logic's turnkey projects involve minicomputers at multiple sites.

Applicants must have at least five years experience including some work in consultancy, system design or team management. Substantial knowledge is required of either high level language

implementation on a leading mainframe or assembler language development on DEC, Data General or other leading minicomputers. We are especially interested in experience of:

- database systems
- distributed systems
- data communications
- telemetry
- operating systems design and implementation.

Salaries will be up to £8,500, with a car allowance or company car for those at the top end of the scale.

There are vacancies at our Greenford, Birmingham and Manchester offices.

Programmers

(Ref PS/02)

For both mainframe and minicomputer projects which include commercial applications, monitoring and control, and scientific analysis.

Applicants should have at least three years programming and/or analysis experience in high-level language or assembler on any leading mainframe or mini. Salaries will be in the range of £4,500 to £6,500.

Vacancies exist in our Greenford, Birmingham and Manchester offices.

Data Communications Support Engineers

(Ref CP/01)

For sales and engineering support roles within Communications Products Division which markets the INTERTEL range of modems and Network Control Systems.

Applicants should have experience either in sales support for data equipment or in design for digital and analogue systems. A degree or HNC qualification is desirable.

Base location will be in Central London but high mobility will be essential and a car will be provided. Salaries will be in the region of £6,500.

Systems Support Staff

(Ref CE/4)

For specialist support roles within our Customer Engineering Division, which provides nationwide field service for terminal and distributed systems, word processors and data communications equipment. The support staff deal with hardware and software, within a diversity of user environments. Each product represents the state-of-the-art in its area.

Applicants should have a degree in electronic engineering or computing science, followed by at least three years work in specialist support with a mainframe manufacturer.

Base location will be Harlow, Essex but high mobility is essential and a car will be provided.

Programmers

(Ref TS/03)

To work on systems software, emulators and advanced packages for applications such as data entry, for Data Logic's PTS100 range of terminal and distributed systems. This is an outstanding opportunity to gain experience in the development of complex high performance standard software. Programmers will work in small teams, taking considerable responsibility for distinct functional areas of the total system.

Applicants should have one to three years experience of software implementation in high-level or assembler languages. A degree in computing science is desirable.

Location will be Harlow, Essex and salaries will be in the range of £4,500 to £6,500.

Data Logic

Write or call, quoting the appropriate reference:
Kathy Martin, Data Logic Limited, 29 Marylebone Road, London NW1.
Telephone 01-486 7288.

A Raytheon Company

01-281 8018

STRATHCLYDE REGIONAL COUNCIL

GLASGOW Sub-Region ROADS DEPARTMENT

SYSTEMS DEVELOPMENT OFFICER

Vicarage House, Indis Street, Glasgow
Salary Scale - APV - £2800-£5000

Applications are invited from persons with a Degree in Engineering, Mathematics or Computer Science for the above post at Headquarters. The successful applicant will be required to have had experience in the use of computer facilities in highways and structural design and management systems. Outlets will include assisting users with applications and developing new techniques. Ref. G577.

COMPUTER SERVICES DEPARTMENT SENIOR PROGRAMMER

(Forten)
Hannah House, Anderson Cross Centre, Glasgow
Salary Scale - AP11/IV - £4300-£6400

The Department of Computer Services provides time-sharing facilities and support to a large number of technical staff within the Region. Engineers, Architects, Statisticians and many other professional users have access to the Authority's main computer from a variety of terminals including graphical display units and plotters.

A Project Team within the Computer Services Department provides software support for these users. Implementing and amending packages and extending these where necessary. The packages supported include engineering design, statistical analysis, school time table production, network analysis and interacting graphics. The wide variety of users offers scope for applicants with relevant FORTRAN experience to broaden their experience in a stimulating and demanding environment. Ref. G764.

*These salary ranges are inclusive of supplement.

Application forms for Glasgow Sub-Region posts may be obtained from The Assistant Director of Manpower Services, 21 Gordon Street, Glasgow G1 3PS, to whom completed forms, quoting appropriate Ref. No. should be returned by 15th March, 1979.

R. M. O. McCulloch
Director of Manpower Services

RSVP
RSVP Recruitment
Minerva House, 29 East Fife Street, L1 5RX
Tel: 0532 33911.

West Yorkshire Systems Programmer to £5,900 + mortgage facilities Systems Analysts to £4,800 + mortgage facilities

An exceptionally modern working environment, the chance to learn, implement your own ideas, an IBM 370/135 operating under DOS/VS with local and remote terminals using CICS/VS, the future installation of an IBM 3031, all add up to an excellent ground floor opportunity for young, career minded professionals.

One of Britain's foremost Building Societies is currently evaluating and establishing a communications network to link its 183 branches, whilst simultaneously operating the present formidable batch processing facilities. An expansion phase not to be missed, it represents an ideal opening for SYSTEMS ANALYSTS with about a year's experience, not necessarily with a programming background or even IBM knowledge. Also a chance for a SYSTEMS PROGRAMMER to play a vital part in the Technical Support Team currently being established.

If you care about your work and your future - for the package includes staff mortgage facilities, non-contributory pension and BUPA - then you can help make the expansion a success.

L. Halliwell, Ref. 1/87/CV
Male of Female candidates should telephone in confidence
Leads (0532) 33911 to arrange an immediate interview.

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Capital Appointments, 26 Windmill Street, London, W1
Telephone: 01-537 8851 (day) - 01-538 9659 (even.)



Join our expanding team at Sun Life of Canada and apart from the interesting development work, you'll also share in a number of benefits which make life richer. There's a special staff mortgage scheme, free three course lunches every day in our own staff restaurant, interest free season ticket loans, flexible working hours which enable you to plan your day and evenings better and of course if you have to relocate, we'll help you with your relocation expenses too. Plus the security and other benefits you'd expect working for one of the largest Life Assurance Companies in the World, with assets of over \$5½ billion.

Would you rather develop your own or look after somebody else's?

Senior Analyst/Programmer starting salary £6800 - £7250. Minimum of 6 years relevant experience, including at least 2 years in systems analysis.

Analyst/Programmer starting salary £5900 - £6350. Minimum of 1 years relevant experience, including at least 1 year in systems analysis.

Junior Analyst/Programmer starting salary £4800 - £5200. Minimum of 18 months programming experience.

Most of the work our team carries out (about 75% in fact) is development work frequently using the VDU screens to develop programs direct. We do both on line and batch work operating an IBM 370/168 under MVS/BS2. In addition to that, we provide on-site training at all levels, using ASI packages.

If we sound like the sort of company you'd like to be part of, then come and meet us, we'd like to meet you.

Please contact: Sue Ives, Recruitment Adviser, Personnel Department, Sun Life of Canada, 2/1 Cockspur Street, London, SW1Y 5HH. Telephone: 01-930 5100 Ext. 223.

SunLife of Canada

If our terminals are so good why do our salesmen have to be so good to sell them?

Because the market we've chosen is big, expanding... and tough. Data Logic's terminal systems are sophisticated, designed for the most demanding computer users. To demonstrate the improvements they can bring to an installation requires a thorough understanding of the client's environment. And since many of our users operate IBM mainframes, IBM itself is one of our prime competitors. That alone means our sales executives have to be rather special.

We are looking for top Sales Executives to be based at our new corporate headquarters in Central London, or at our regional offices in Birmingham and Manchester. A sound D.P. background is essential, together with a proven record of selling computer equipment to large industrial and commercial organisations. He or she will have experience of

transaction systems, including order processing, and ideally of distributed processing. We are especially interested in knowledge of banking, insurance, the distribution industries and the public sector.

Salary and commission should give annual earnings of £12,000 plus, after an initial period, and a car will be provided. Our ambitious expansion programme, aimed at more than doubling turnover over the next five years, will ensure that the salary and career prospect will be outstanding for those able to seize them.

Relocation expenses will be paid for staff who need to move home.

Write or call quoting ref TS/03 and preferred base:
Kathy Martin, Data Logic Limited,
29 Marylebone Road, London NW1.
Tel: 01-486 7288. A Raytheon Company



LONDON BOROUGH OF ORIENT REDFON PROGRAMMER/ ANALYST

(£4,017-£4,431 inclusive)

We need a keen person to act as Programmer/Analyst to support our Redifon Speech Key-to-Disc system. In order to expand the use of this equipment as a mini computer. Though eventually the person appointed will be expected to work with the minimum of supervision, full Redifon experience is not expected as training will be given where necessary. The post will be attractive to a young programmer seeking to widen his/her experience. We use an IBM 370/148 as our mainframe computer and interface with it as envisaged. Generous location expenses are available. Interest free loans for annual staff season tickets. Subsidised staff canteen, 36 hour week, flexible working hours.

Application forms from the Administration Manager, Room 7065, Grant House, High Road, Wembley, Middlesex, UB9 5PL. Tel: 01-81 303 1371 (24 hour Answering Service). Reference number R/26/JD must be quoted.

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Up to £7000
APPLICATIONS PROGRAMMER
Up to £6000

Preferably with IBM experience including Cobol. Our U.K. computer department at West Byfleet, Surrey, intends expanding its development program with IBM 4300 hardware and over the next 2-3 years will include on-line integrative applications (financial and commercial) for Head Office and a number of manufacturing locations in the U.K. If you would like to join a small successful team that is working closely with the users and would welcome an opportunity to make a major contribution to computer development in a progressive company then please contact: Mr. Van Leer, Room 200, West Byfleet, Surrey (Tel: 01-884 8113).

INTERNATIONAL SPORTS COMPANY LIMITED (Member of Dunlop Ltd.)

PROGRAMMER WEST YORKSHIRE

Our expanding Computer Department is a Programmer with one or two Cobol applications to work on batch developments.

We currently run two ICL 2904 Comp EDS 80's and remote and locally.

Competitive salary and benefits in good company practice.

Please apply in writing giving details to date.

STEVE REDGRAVE, Group Systems Officer
International Sports Co. Ltd.
97 Bridge Road, Harrogate, West Yorkshire HG1 1BN



Sales Executives Accountants Advance your career in sales and enjoy probably the best benefits package in the industry

The recent Jordan Survey on Britain's Top 500 Electronic Companies showed that CMG COMPUTER MANAGEMENT GROUP is the highest payer in the computer industry (front page Computer Weekly, 1st February, 1979) - but the benefits of working for CMG go much further than that.

CMG is now the largest independent computer services bureau in Europe. Privately owned by the employees, its unique style of management, and employee participation has generated vigorous growth which has tripled annual turnover to £12 millions in the last four years. It goes without saying that in this environment there are ample opportunities for career advancement.

We are seeking sales people to sell our range of commercial application packages already working successfully for over two thousand users. You will join a small but well trained and supported sales group who receive the following benefits -

£6,000-£14,000 p.a. Salary (not commission)

- which will exceed your present total earnings and be reviewed annually plus,
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 - Assistance with removal expenses.

Locations - London, Croydon, Manchester, Glasgow.

If you are a successful business equipment, systems or bureau sales executive, or a qualified accountant wishing to enter sales then please contact: Elizabeth Attewell

SMR Sales & Marketing Recruiters Ltd.
Victory House, 99 Regent Street,
London W1R 7HB
Telephone: 01-734 9776

MULTI-ACCESS

Online programming at a computer system on a mini.
Two freelance programmers needed to start work urgently using high-level language, location W1.
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CONTRACT PROGRAMMERS REQUIRED

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SMR Sales & Marketing Recruiters Ltd

Sales Executives

You are seeking to advance your career rather than simply looking for another job then you need the objective guidance of an experienced sales executive who is totally conversant with all aspects of sales and marketing within the computer industry.

Although our activities are devoted to this area, we are not merely a recruitment organisation, we are the only company within the industry which also provides sales training, market research and product promotion.

We understand sales people because we have done the job our clients for a total of over 25 years, and we know where the best job opportunities are, because we have access to all the significant computer companies.

So give us a call if you need help of any kind, we believe there is still room for all sorts of business. Who knows, you might even end up speaking with TRADER!

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- Programming

Avionics experience would help but is not essential. Posts are available at our existing premises at Bracknell and Cwmbran and are open to male and female applicants.

Please write, or phone, for an application form to: The Personnel Department, Ferranti Computer Systems Limited, Western Road, Bracknell, Berkshire RG12 1RA. Tel: Bracknell (0344) 3232. Please quote ref. no. G7/10/CW.

FERRANTI Computer Systems

Telephone: 01-734 9776

THE SALES AND MARKETING BIT

FORECASTING V

'Rubber' figures mean loss of credibility

LAST week we were discussing the need to take two differing approaches to the generation of the sales forecast - an external one which is basically mathematical and an internal one which is on the basis of informed opinion.

We then discussed the relative merits of sales forecasting by extrapolation and the use of moving annual totals - although moving periods such as quarterly totals might in some situations be preferable.

In some ways the smothering effect of the moving annual total tends not only to iron things out but also press things in. This particularly applies to identifiable and non-recurring exceptions or short-term trends.

For instance there may have been a period, of say six months, in a previous year when sales within a computer bureau were restricted due to the overdue delivery of an additional computer. There may also have been variances due to external influences, for example something is a mathematical device which is able to compensate for these kinds of special variances.

If you want to get really clever, then it is possible to use algebraic methods for evaluating the effect of one variance upon another, namely regression analysis, but I never got that ambitious.

Within the context of long-term forecasting there is a need to take into account the effect of both technological advancement and competitive products.

Correlation analysis takes into account the possible effect that the marketing of one product may have upon another - for instance, the influence of key-to-disc systems on punch cards.

Tied indicators are a very precise form of correlation where the sales of one product is a direct function of the sales of another; for example, floppy discs and cartridges are virtually dependent on the number of mini and microcomputers sold.

The application of some or all of the methods of analytical and mathematical forecasting mentioned in this and last week's columns should eventually bring the sales manager to a sales forecast which he believes is a fair (fair/reasonable not fair/moderate) assessment of likely sales achievement for the coming year.

That is the external forecast. The other internal, up-to-date and just as necessary forecast, is a composite judgment of what is possible in terms of sales and production. This is achieved by creating the amalgam of customer, sales, production, and management opinion already discussed earlier on this topic.

The two forecasts should then be compared. They will seldom be the same but any

severe deviation will indicate a contradiction somewhere which needs to be resolved.

The approach provides three significant benefits: 1. It checks the accuracy of the original sales forecast; 2. It crystallises the judgment and considerations of sales management; and, 3. It involves all those people who will be called upon to accept the commitment implied by the forecast.

Of course, the sales forecast is in itself only a beginning. There is then the estimation of related selling costs which will be added in order to assess the profit forecast which is really the key to it all.

One personal feeling on the subject before closing: No sales manager worth his salt, having committed himself to a sales forecast, will, in my opinion, scrap it and replace it with some artificial figure, which neither he nor his people believe in, just because the number in the bottom right-hand corner of the company budget doesn't please the managing director.

Reduce other company costs, take on the challenge of revenue over and above the coil of duty by all means, but stick to the original forecast.

There's no better way of losing credibility with one's subordinates or superiors than dealing in "rubber" sales forecasts.

TRADER

Jargon book

THE British Standard glossary of terms used in data processing has been published by the British Standards Institution. It contains the terms and definitions of data media, storage and related equipment, and is available from the British Standards Institution, 2 Park Street, London W1A 2BS. Tel: 01-629 9000.

Bigger offices

THE Cheltenham-based makers of data logging and computer peripheral equipment, Christie Electronics Ltd, is taking premises in Stroud, Gloucestershire, for its headquarters and sales operations. They are located at Rodney House, Church Street, Stroud, Tel: 04538 78821.

Scottish HQ

THE Scottish headquarters of CMG is now at 18 Atholl Crescent, Edinburgh, EH3 8HQ. Tel: 031-228 7831.

Puzzle Answer

8 4 8 3
8 4 8 3
8 4 8 3
1 0 7 8 1 7

PRIME OPPORTUNITIES

Is your career growing as fast as our company?

Our growth rate is impressive—not just because our products are among the most competitive around.

Or because we've set ourselves ambitious targets—and continue to achieve them.

It's because of our people. We employ some of the best in the business. Professionals whose individual contributions are making PRIME a major force in minicomputers.

And our customers. Discriminating organisations who recognise the contribution our products make to their business needs.

Can you afford to miss your chance?

Join us and give your career a chance to develop in line with your abilities. The majority of our current managers did just that when they took their opportunities with us.

Our continuing growth offers unique prospects for your personal development. Right now, our expansion has created these openings:

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Mainframe Computer sales background; proven track record, genuine entrepreneurial flair.
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Mini/Mainframe service experience, preferably around two years. Additional training in U.S.A., plus specialist courses in U.K. Locations: London, Birmingham, Manchester.

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Specialist Support and customer liaison roles—at least three years in one or more of COBOL/FORTRAN/BASIC. Locations: Hounslow, Manchester, Birmingham, Glasgow.

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Prime Computer (UK) Ltd.,
The Hounslow Centre, 1 Lampton Road,
Hounslow, Middlesex.
Contact Ian Marsden on
01-572-6241 NOW!

PRIME

Ascii through the Logic Gate

An epic in 32K words, by Richard Forsyth

Block 28 (Ivory Tower Block)

Cleo's exploration of the disused mercury mine has led her deep into trouble. She has fallen through the ventilation shaft of an experimental laboratory heaven out of the rock.

SHE looked around her. The place was fitted out like an alchemist's den. A stuffed crocodile hung by chains from the ceiling. Its sharp teeth glinted in the pallid artificial light. Round the walls, like a big game hunter's trophies, were mounted the heads of various exotic apes, mostly herbivores such as elk and antelope, though she spotted a black puma and a snow leopard among them. Here and there on the shelves she could see, pickled in jars of yellowish preservative, what she took for animals' brains. The foetid smell of formaldehyde pervaded the air. She had upset a bottle when she nodded and the liquid was oozing across the floor.

At the far end of the laboratory, to her right, an android had put down the retorts and flasks he had been busy with and was eyeing her with curiosity.

"And?" he exclaimed, turning off his Bunsen burner. "Just what I want for my cross-breeding experiments — a human female of childbearing age!"

Cleo didn't like what she heard.

He began walking towards her. She noticed first his style of dress. Eschewing the lab worker's sterile white coat, his garb was the epitome of trendiness. His pale lemon kaftan was patterned with intricate Arabic calligraphy, and unbuttoned at the top to reveal a grizzled expanse of chest hair. Against this virile moustache some sort of runic pendant hung on a leather thong round his neck. Hip-hugging jeans clung modishly to his middle-aged spread.

He stopped before he reached her and opened a refrigerator. In among the racks of biochemical specimens was a six-pack of beer. He pulled out two cans and handed one to Cleo.

"Here," he said, popping open his can, "have one." Cleo gratefully gulped down the ice-cold lager. He took a couple of swigs and then asked: "Who are you? I'm Mike Rose, Director of the Meta-Physical Laboratory."

"I'm Cleo Calculus."

"Well Cleo, if you will just finish off your drink and come this way, I'll show you what you have to do. It shouldn't take long; and it won't hurt a bit."

His polished bedside manner was at once as affable and



imperious that it had a mesmeric quality. She found herself involuntarily following him. He led her down to the other end where there was a little cubicle with a curtain which he drew aside.

"Just step in here and take off all your clothes. I'll be back in a minute," he told her.

Meekly, without question, she went inside, almost watching herself as a spectator. His steps gradually receded. There was the sound of a latch being lifted.

Cleo peeped out. At the other end of the lab, Rose was holding the door open to let in his assistant.

"Pitdown!" she exclaimed in surprise and delight, running out though she was half naked.

"You're acquainted, then," remarked Rose mildly. "Of course," she replied, "it's Pitdown. But he can't be Pitdown's dad."

"Actually this is Neddy (short for Neanderthal). Pitdown's clone," explained Rose. "We always keep a spare copy."

Cleo gazed up at him. Pitdown's face was etched with

ably in her memory. This certainly was the spitting image. He smiled down, hardly seeming a stranger.

"Now then, shake hands," Rose said. "Cleo meet Neddy Bigfoot. Neddy, this is Cleo."

"Pleased to meet you," said Cleo.

"Hunnnn tuggon," replied the ape.

"He still speaks Esperanto," said Cleo. "Why don't you teach him English?"

"Too illogical," explained Rose. "He's more at home in pure third-order Predicate Calculus anyway; but I find it hard to keep up with him. Esperanto is a concession to my frailty: it's the least methodical language I can permit him to learn without polluting his mind with human values."

"But I can't talk to him," complained Cleo.

"Oh, you'll get along fine without it. I can see," Rose answered, "which is a pity in a way because I shall now have to abandon my plan to form a hybrid by mating human with Sasquatch."

Cleo listened with relief. Rose was beginning to seem eminently reasonable.

"Yes," he continued. "I'm afraid you're no use to me. You're pregnant already."

"What?"

"Don't worry. I can tell before you can — less than seven days after the event. I only need one look. I'm the world's leading expert."

"Impossible!" she expostulated.

"Wait and see," he replied calmly. "Time will tell."

"But, I mean... I thought androids couldn't..."

Rose raised his eyebrows. "An android father, eh? Now you've got me interested again. Some of us can, you know. In the old days all they kept for cybernation was the brain and spinal cord; but modern thinking is that it's more economical to leave most of the vital organs intact."

Cleo flushed deep scarlet.

"You'd better go and put your clothes on again," suggested Rose.

While she was in the cubicle dressing, Rose called over: "Bigfoot will show you around while I decide what's to be done with you."

When she emerged the great ape beckoned and she went out through the door after him. She found herself on a megalithic riveted into the rock. They stood at the edge of one of the catwalks that crossed and criss-crossed the vast subterranean cavern. She looked down at a hive of industry beneath. Automata of all descriptions (finite, deterministic, non-deterministic, pushdown and linear-bounded) scurried purposefully to and fro across the floor of the cave like ants, bathed by arc-lights from the vaulting roof. The whole place buzzed with incessant activity.


"Granda, jest?" inquired her guide.

"Granda," she replied, "yes." Her mind was not on the busy workers scuttling below. She was thinking of the unborn child in her womb, wondering whether it would ever see the light of day, and, if so, how she would cope.

Is this now burden too heavy for her? Back to Hex next week

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